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ABSTRACT

This environmental curriculum guide is designed for teacher use in the third grade. A collection of multidisciplinary activities, guidelines for conducting field trips, and a resource section are included. The activities are organized within three categories--awareness, man's use, and problem solving. They are designed to provide the student with opportunities to make observations, collect and record data, interpret the data, and summarize. The use of these activities, either individually or in sequence, aims to establish a climate of pupil participation, discussion, and interaction. Each activity is classified by topic, subject, completion time, and grade level. All activities include; objectives, a materials list, teacher background information, a preactivity, the activity, a postactivity, and additional activities. Guidelines for conducting a field trip are included to facilitate the teacher in teaching her students in the out-of-doors. The guidelines cover pre-field trip, field trip, and post-field trip planning. The resource section lists speakers, films, free and inexpensive materials, pamphlets, and conservation and environmental groups which may be contacted for information about environmental topics. (TK)

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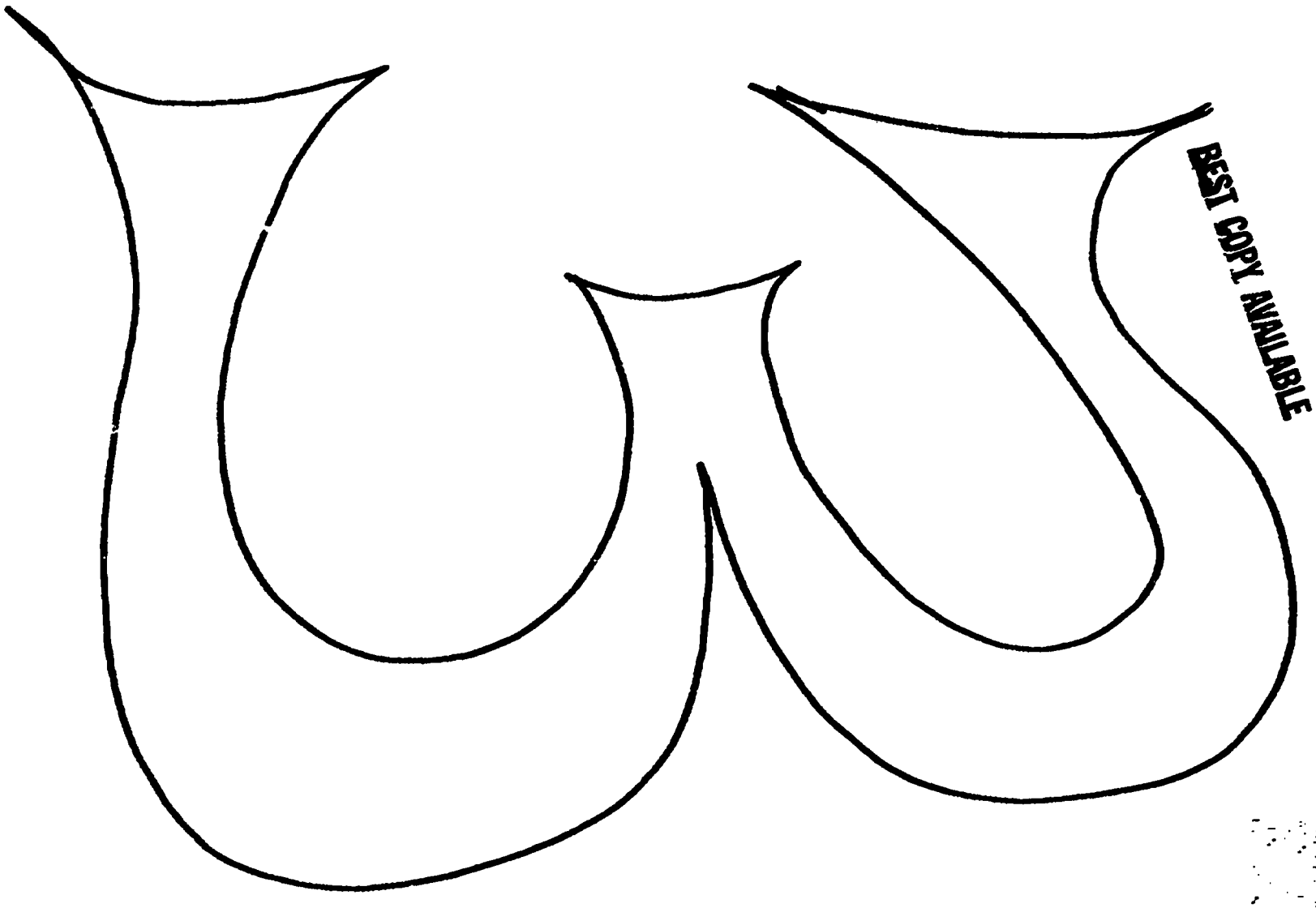

A MULTIDISCIPLINARY PROCESS

CURRICULUM IN ENVIRONMENTAL EDUCATION

K -- 12

Under Provision of Public Law 91-516, Grant No. OEG-0-72-5436

Project No. RO 21178

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1973

PROJECT SUMMARY

This project was designed to provide working model for the structure and implementation of a multidisciplinary process curriculum in environmental education, grades K-12. This model emphasizes the broadly based socio-ecological approach endorsed by the Edmonds School District Environmental Education Council, as a unifying theme to be incorporated into a comprehensive environmental program. Such an approach seeks to integrate the cultural, historical, and social aspects of man with fundamental sociological principles applicable to all living organisms. It will utilize the school and total community as a field laboratory and as a basis for the investigation of ecological relationships and environmental problems. The design of the model presented here includes five phases which have been sequentially organized into the following areas:

1. To plan for the structure of appropriate training and student activities as designed by two writing teams selected on the basis of defined qualifications. The participating teams represented each grade level, K-6, and each relevant secondary discipline, 7-12. The team consulted with community, local, state, and natural resource personnel and incorporated existing materials into a total program that reflects the objectives established.

2. A plan for implementing the materials written by means of training sessions at the elementary building level and for the specific secondary disciplines and secondary teachers involved. The writing team will form a nucleus for the training of teachers in use of materials and equipment.

3. A plan to evaluate the effectiveness of materials and methods used through formal and informal feedback from students and teachers involved. Students will be evaluated on the cognitive aspects of the curriculum materials written and both teachers and students on the attitudinal aspects.

4. A plan for revision and retraining as necessitated by the analysis of evaluation procedures and results, and from community feedback.

5. A plan to continue the program utilizing district and community funds under the guidance of the Edmonds District No. 15 Environmental Council in cooperation with the District Environmental Consultant.

This project is a "beginning". It was written during four weeks of the summer of 1973. The writing team realizes that they have just scratched the surface of putting together a K-12 multidisciplinary environmental education curriculum. We know that it needs to be tried by teachers, and hope that you will use it while instructing your students. Try it out! Write in it and jot down your notes. Revise, add and delete! Then give us feedback as to how you used it and how you felt about the whole thing so that we can work your ideas into our revision next summer. There are extra lesson outlines in the back to experiment with. Now -- enjoy!

Grades 3, 4, 5 and 6

INTRODUCTION

This is a series of lessons which are still in rough draft form. We would encourage you to use, refine, revise, delete and add to these lessons. They are only as good as your ideas make them. To be of greatest value, the lessons should undergo continuous revisions for improvement. Please use the open spaces on the lesson plans, and the forms at the end of this section, to make your own notes and lessons. Many minds are better than few!

We have attempted to provide opportunities for the student to make observations, collect and record data, make some interpretations of the data, and summarize. The activities were designed to emphasize this process, thus developing the ability of each student to think for himself. The use of a certain question sequence facilitates this thinking process. It can establish a learning climate which will foster pupil participation, discussion and interaction. It can allow students to interpret their own observations and record data. In recognition of the high quality Environmental Education materials previously published by Edmonds School District #15 and surrounding school districts, it was decided to concentrate our efforts on activities and processes which seemed to be new material.

Many lessons include task cards for student use. The advantages of a task card over a work sheet are: 1) They are more manageable for use in the field; 2) Students are more free to collect their own data, since directions are kept simple and open-ended, and are printed on the card; 3) The task seems attainable at the outset, and students are able to experience a sense of completion and success at the end; 4) By having only one task card per group, fewer records need be kept by the children and the adult in charge.

Litter Lessons are identified by the torn paper design in the upper right-hand corner of the page. They will appear this way throughout the various grade levels of three through six.

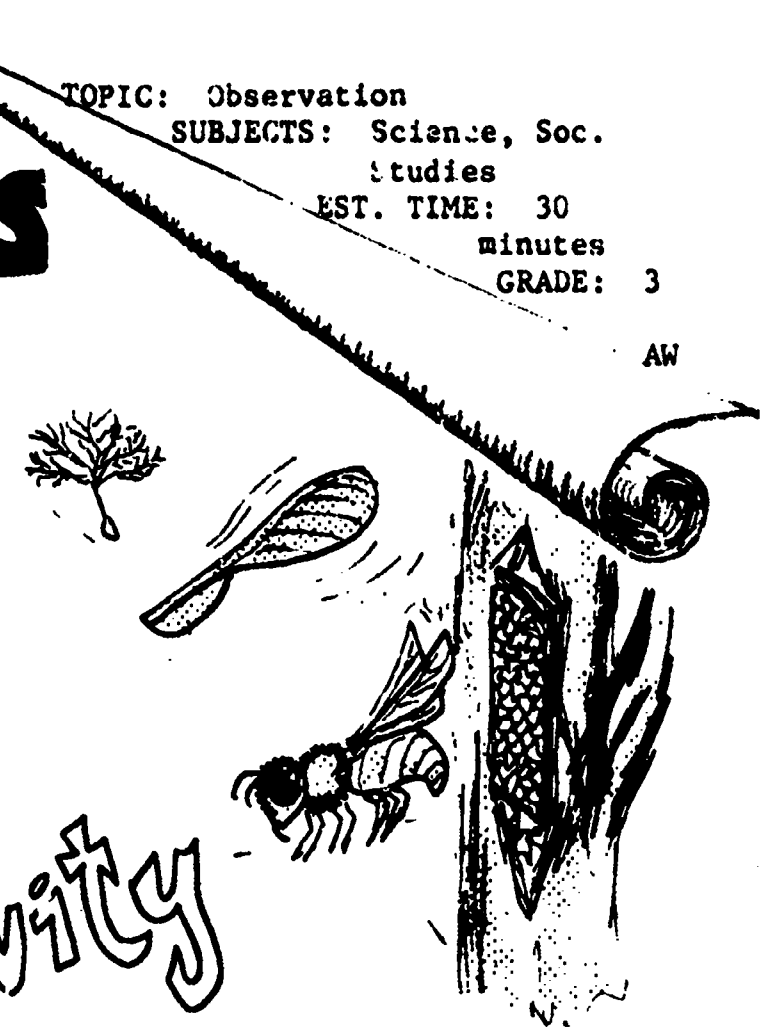
The entire litter section of the curriculum project was funded by the State of Washington Department of Ecology, and drawn up by the Federal Project Environmental Education Writing Team during the summer of 1973. The litter sections are a part of the overall Environmental Education Federal Project. It is hoped that it will provide additional environmental awareness among children at the elementary level.

ARTICLE 29

NATURAL INVENTIONS

TOPIC: Observation
SUBJECTS: Science, Soc. Studies
EST. TIME: 30 minutes
GRADE: 3

AW



Activity

PRE-ACTIVITY (5 minutes)

Discuss Some Inventions

1. What are some inventions you can name?
2. Briefly explain how they work.
3. What simple machines can be found as a part of these inventions?
4. What examples in nature can be compared with these man-made inventions or simple machines?

ACTIVITY (15 minutes)

Go Outside and Compare

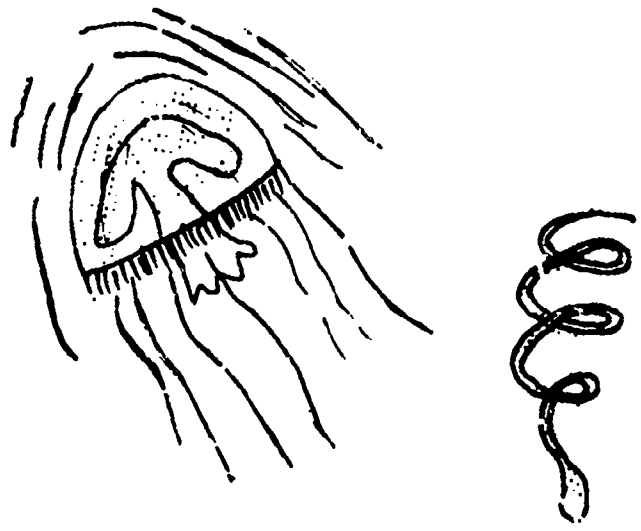
Using your five senses, try to observe natural objects that look like or work like man-made machines or inventions. Take a close look at some of the following plant structures: seed dispersal, insect habits, animal feeding and transportation methods, insect products and by products, animal homes.

POST-ACTIVITY (10 minutes)

What Can Man Learn

Now can you answer some of these questions?

1. What insect makes paper?
2. What insect uses jet propulsion?
3. What marine animal uses jet propulsion?
4. What insects use air conditioning or fanning?
5. What animal shellfish drills into the beach?
6. What seeds travel like parachutes?
7. What seed drills itself into the ground using wind?
8. What plant and animal inventions has man copied?
9. What could he copy?



SUGGESTED ADDITIONAL ACTIVITIES

Go into more detailed study of forms of simple machines and allow children to use them to make work easier doing a project on school grounds.

LEVEL V OBJECTIVE

The student will comprehend relationships among all organisms and their non-living environment.

LEVEL VI OBJECTIVE

The student will know that natural phenomenan are sources of inspiration for human inventions.

Materials

MATERIALS

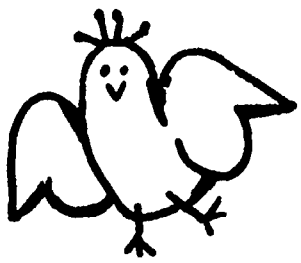
Use your five senses!

TEACHER BACKGROUND INFORMATION

Refer to guidelines for Teaching Children Outdoors and discuss the inventions in terms of simple machines like the wheel, lever, and inclined plane.

RESOURCES

Hugh Wilson - Curriculum Enrichment Outdoors.



TOPIC: Animals
SUBJECTS: Lang. Arts, Science
EST. TIME: 20-45 minutes
GRADE: 3

AW

ANIMAL TALK SHOW

Activity

PRE-ACTIVITY (5-8 minutes)

Nature Hike - Listen, Observe, Record

Students walk to a quiet area, sit down, listen, and record all sounds heard.

ACTIVITY (10 minutes)

Creative Skits

Students will share sounds they heard - the smallest, the loudest, etc.
Divided into groups of two, students will prepare a one minute skit of animal conversations. Example: "Squack, what are all these people doing here." "Honk - honk, I don't know, but they're invading our property."

Perform the skits.

POST-ACTIVITY (5 minutes)

Discussion

Discuss the different ways animals communicate: For protection, while mating, etc. Does the volume change?

SUGGESTED ADDITIONAL ACTIVITIES

Using a tape recorder, tape the sounds.

LEVEL V OBJECTIVE

The student will perceive himself as a part of nature

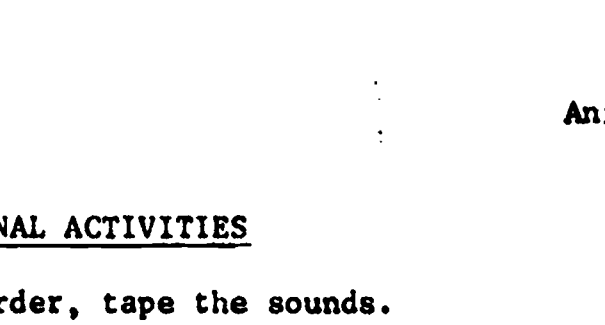
The student will desire to live in harmony with the rest of nature.

LEVEL VI OBJECTIVE

The student will know animal sounds in his local environment.

The student will know that animal sounds are a form of communication.

MATERIALS



Pencil, paper for each student.

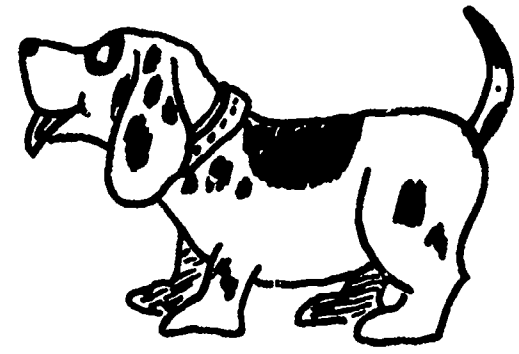
TEACHER BACKGROUND INFORMATION

Have a whistle or some device so that students will know when to "break" from groups. While listening and recording sounds, have children be at least an arm's length from the other children.

TOPIC: Animals
SUBJECTS: Lang. Arts, Math, Art, Science
EST. TIME: 1 week
GRADE: 3

AW

ANIMAL SURVIVAL



PRE-ACTIVITY (3 days)

Observe Animals in the Classroom

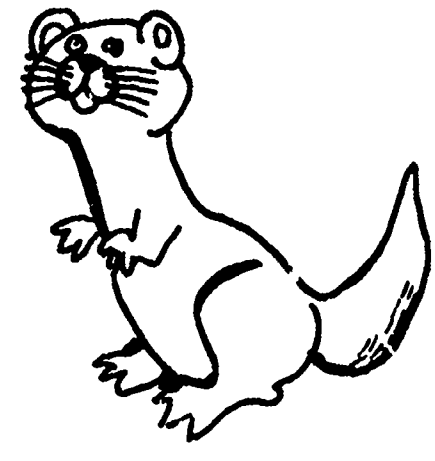
Discuss who could bring a pet to the classroom for three days. Try to arrange for two or more to come. Plan for appropriate housing and care. Do Task Card #1.

Activity

ACTIVITY (30 minutes)

Observe Animals Outside

With a partner, go outside. Find two animals and observe them. Do Task Card #1 again.



POST-ACTIVITY (30 minutes)

Read about a wild animal and do the Task Card again. Share what you read.

SUGGESTED ADDITIONAL ACTIVITIES

Art: Out of clay, build a model animal and a model home for the animal.

Math: Tabulate the cost of keeping the animal for one day, one week, one month.

LEVEL V OBJECTIVE

The student will comprehend relationships among all organisms and their non-living environment.

LEVEL VI OBJECTIVE

The student will know that all animals need four basic things for survival; food, air, water, and shelter.

MATERIALS

Animal; cage; food for animals; Task Card #1 (one per pupil, to be used three different times); books on wildlife

TEACHER BACKGROUND INFORMATION

Make sure the principal, janitor and parent of the child bringing the pet are aware of your experiment. Make sure the cage and food are sufficient.

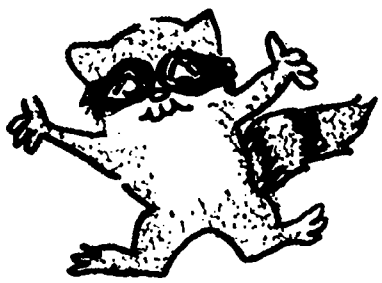
TASK CARD #1

	Animal #1	Animal #2
1. Kind of Animal		
2. Observe and list things the animal needs to survive. Figure out a way of recording the amounts on this card.		
3. Describe the animal. Remember to tell about size, shape, color, special characteristics, noises, habits, etc.		
4. Describe his habitat		
5. What differences do you notice between the two animals?		
6. What things do the two animals have in common?		

TOPIC: Animals
SUBJECTS: Science, Lang. Arts, Math, Soc. Studies
EST. TIME: 1-2 Weeks
GRADE: 3

AW

ANIMAL EXPERT STUDY

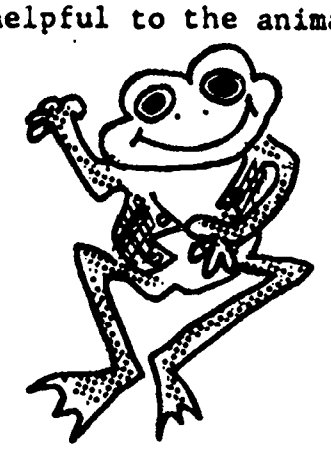


ACTIVITY (1 - 2 weeks)

Report on an Animal

Having nature magazines, library books and encyclopedias, the child will make a seven page report:

Page	Content
1.	Draw a picture of an animal.
2.	Write a paragraph describing what the animal looks like.
3.	Write and illustrate the food the animal eats.
4.	Write and illustrate where the animal lives (forest, meadow, the State or country where the animal lives, desert, etc.)
5.	Write about an animal's enemies.
6.	Write how the animal is useful to man.
7.	Write how man could be more helpful to the animal



PRE-ACTIVITY (Two 20 minute periods)

Creative Drama

1. Pass out to student an envelop with a cut-up of an animal. Student puts puzzle together, then acts out animal (20 minutes).

2. List other animals on the board that were acted out. Name other unusual animals.

3. Choral reading of poem "The Animals are Coming," on page three of this lesson.

4. Child will then pick one animal he would like to be an expert about.

Activity

POST-ACTIVITY (20 minutes)

Share orally the interesting facts about the animal. Make a "picture book" of animals seen.

Observe animals on school site and at home. Go to the Zoo, and watch one animal carefully. Come back to class and act out the unusual characteristics of the animal.

SUGGESTED ADDITIONAL ACTIVITIES

1. Art: Each child selects an animal and papier-maches it.

2. Math: Animal sets - grouping according to size, number of legs, etc.

3. Lang. Arts / Creative Writing: Combine the names of 2 or more animals to form a "new" animal. Write about it. Example: Skunk + Duck = Skuck; Kangaroo + Rooster = Kangarooster.

LEVEL V OBJECTIVE

1. The student will be able to identify plants and animals of his local environment.

2. The students will recognize the enormous diversity of life on earth.

LEVEL VI OBJECTIVE

1. The student will know at least five characteristics of a particular animal in his environment.

2. The student will be able to explain how one animal adapts to his environment.

MATERIALS

Picture puzzles for each student. (Use pictures of animals from magazines.) Envelopes; library books; magazines; encyclopedias; films on animals; papier-mache materials (wheat paste, newspaper, paint); poem "In Come the Animals"

TEACHER BACKGROUND INFORMATION

You might want to introduce unit by showing a film on animals, then discuss how animal is alike or unlike the students.

RESOURCES

Choral Readings Curriculum Bulletin LAR 53, Edmonds School District #15, Lynnwood, WA

IN COME THE ANIMALS

In come the animals, two by two,
Hippopotamus and a kangaroo;
Them bones gonna rise again.

In come the animals, three by three,
Two big ants and a bumblebee;
Them bones gonna rise again.

In come the animals, four by four,
Two through the window and two through the door;
Them bones gonna rise again.

In come the animals, five by five,
Almost dead and hardly alive;
Them bones gonna rise again.

In come the animals, six by six,
Three with clubs and three with sticks;
Them bones gonna rise again.

In come the animals, seven by seven,
All trying to get to heaven;
Them bones gonna rise again.

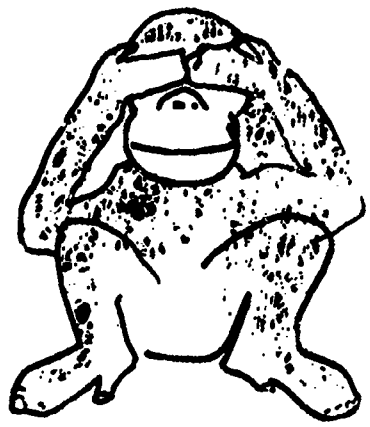
In come the animals, eight by eight,
Four on time and four were late;
Them bones gonna rise again.

In come the animals, nine by nine,
Four in front and five behind;
Them bones gonna rise again.

In come the animals, ten by ten,
Five big roosters and five fat hens;
Them bones gonna rise again.

SEE-SAW SENSES

TOPIC: Observation Skills
SUBJECTS: Lang. Arts
EST. TIME: 40 minutes
GRADE: 3



PRE-ACTIVITY (15 minutes)

In Class

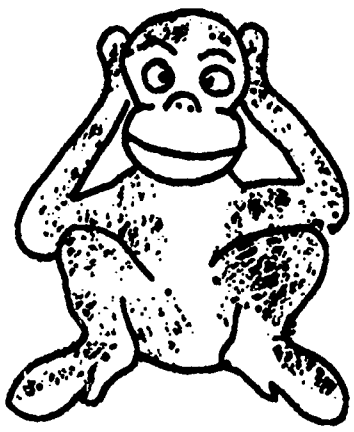
1. Close eyes for two minutes. Notice everything happening to your body in those two minutes. As a group, write a paragraph, or list what you noticed.

2. Prepare to Go Outdoors - discuss boundaries, set limits. Set a signal for returning to class.

Activity

ACTIVITY (10 minutes)

Use all Senses Except Sight

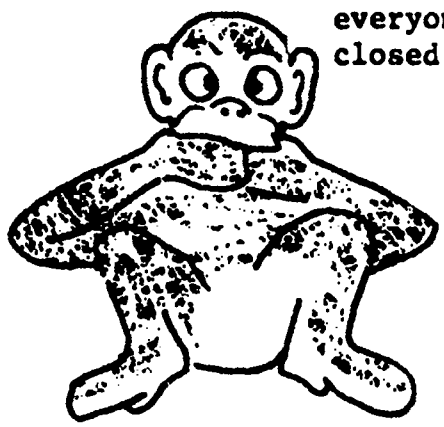


Choose a spot outside to sit down. Close your eyes for five minutes. Write down everything you noticed happening to your body in those five minutes. Be sure to describe any sounds you hear.

POST-ACTIVITY (15 minutes)

In Class (or outside)

Record observations on paper and illustrate one. Or, speak observations into cassette tape, then replay while everyone sits again with their eyes closed.



SUGGESTED ADDITIONAL ACTIVITIES

Try this same activity at home in the yard or on a camping trip.

LEVEL V OBJECTIVE

Student will know and apply problem-solving techniques, expecially the use of senses other than sight.

LEVEL VI OBJECTIVE

The student knows that data collected through all five senses is different from data collected with the sense of sight excluded.

MATERIALS

Paper and pencil for students or a cassette recorder and tapes.

TEACHER BACKGROUND INFORMATION

See the section in Teaching Children Outdoors.

TOPIC: Observation Skills
SUBJECTS: Lang. Arts, Art
EST. TIME: 45 minutes
GRADE: 3
AW

SCATTER AND GATHER

Activity

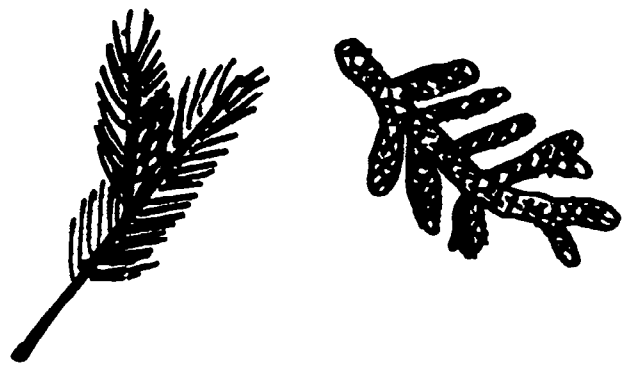
PRE-ACTIVITY (5 minutes)

Explain to students rules and boundaries for this outdoor exercise. Instruct them to listen carefully as directions will be given orally. Explain signal for coming back together.

ACTIVITY (20 minutes)

Touch and Feel

Organize students in small groups or with partners. Allow students two minutes to scatter and follow each directive. Blow whistle to signal children to regroup and share by placing all the "hairiest," etc. leaves on colored tagboard when students come back together. Give the next directive and allow two more minutes. Continue.



Give the following directive:

1. Find the hairiest leaf. Bring back a tiny bit and compare.
2. Find the softest leaf.
3. Find the smoothest leaf.
4. Find the roughest twig.
5. Find something cool.
6. Find something warm.
7. Find something bumpy.
8. Find something dry.

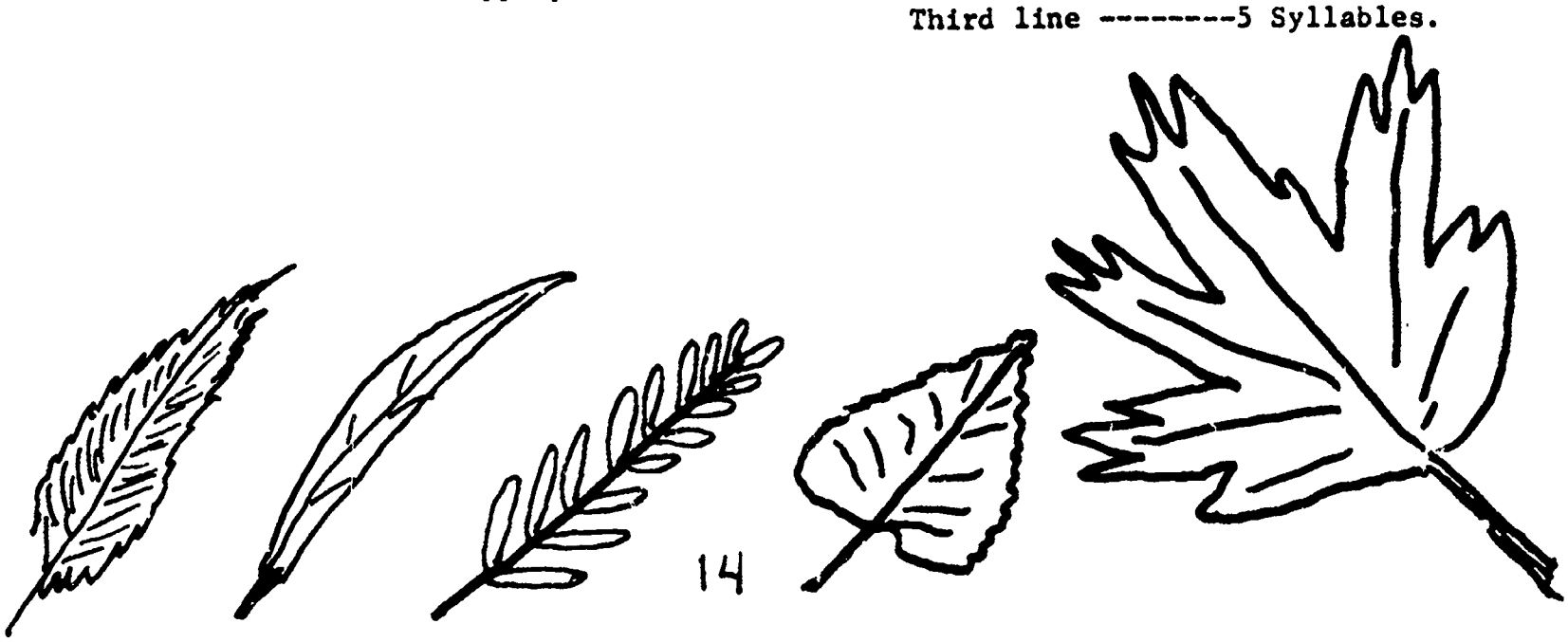
Include others when appropriate.

POST-ACTIVITY (20 minutes)

1. Using one of the found objects, create something unique.

2. Write a haiku poem about the object. A haiku poem consists of three lines with a total of 17 syllables.

   First line --------5 Syllables
   Second line -------7 Syllables
   Third line --------5 Syllables.



SUGGESTED ADDITIONAL ACTIVITIES

Math: Form sets of the hairiest leaves, softest leaves, roughest twigs, etc.

LEVEL V OBJECTIVE

Children will appreciate the enormous diversity of plant and animal life in their environment.

LEVEL VI OBJECTIVE

The student will know five tactile sense differences in the natural environment such as rough, smooth, hairy, and cold.

MATERIALS

Whistle; paint; felt markers; eight pieces of tagboard marked HAIRIEST, SOFTEST, etc.

TEACHER BACKGROUND INFORMATION

See the guidelines for Teaching Children Outdoors

COLOR HIKE

TOPIC: Observation Skills
SUBJECTS: Art, Lang. Arts
EST. TIME: 35 minutes
GRADE: 3

AW

PRE-ACTIVITY (15 minutes)

Observation

Have students look around the room and count the different colors of green (from dull to dark green). Assign directions for going outside (groups, boundaries, signal for re-grouping, etc.). Assign tasks.

ACTIVITY (10 minutes)

Color Hike

1. Have students look for things that are different colors of green. Bring back three or four things. Arrange them in your hand according to color - lightest to darkest green.

2. Have students glue green things collected by class on one or two long papers - from lightest to darkest.

POST-ACTIVITY (10 minutes)

Green Task

Each student should sit down outside by himself. Do the task on the attached card. Return at signal.

SUGGESTED ADDITIONAL ACTIVITIES

Repeat task using other colors.

LEVEL V OBJECTIVE

The student will recognize the enormous diversity of life on Earth.

LEVEL VI OBJECTIVE

The student will know that the color green appears in several shades.

MATERIALS

Materials

Two long, narrow pieces of butcher paper; Elmer's glue, Task Cards, one per student.

TEACHER BACKGROUND INFORMATION

Discuss with class the importance of not destroying living things. To minimize destruction, work with a partner, and take only a tiny sample.

TASK CARD

GREEN THINGS YOU CAN SEE:

What are the sounds of green?

How does green feel?

What things that we eat are green?

How does green smell?

Green is the feeling of ...

(Cards should be printed with the same format for the colors red, brown, black, gray, yellow, orange, blue, and white, also.)

TOPIC: Observation Skills
SUBJECTS: Science, Art
EST. TIME: 25 minutes
GRADE: 3

AW

ALPHABET HIKE

PRE-ACTIVITY (5 minutes)

Practice Game

1. Practice alphabet game in classroom by naming things they see in the room or looking out the window (example: A-Apple, B-Bird, C-Cloud).

2. Divide class into small groups. Set guidelines for behaviors.

Activity

ACTIVITY (15 minutes)

Alphabet Hike

Go outside in small groups. Have each group list as many natural items as they can find beginning with each letter of the alphabet. (See data sheet - p. 3)

POST-ACTIVITY (5 minutes)

Share and compare

Share items on student's lists. Each child could fill in the observations of his classmates which he did not have on his list.

SUGGESTED ADDITIONAL ACTIVITIES

Number Game: Outside, or at home or during a film, etc., list living things (plants, animals, etc.) that you see alone, in pairs, in three's, etc.

LEVEL V OBJECTIVE

The student will recognize the enormous diversity of life on earth.

LEVEL VI OBJECTIVE

The student will be able to identify a minimum of ten natural (not man-made) objects in the environment.

MATERIALS

Prepare cards or dittos as follows:

Divide the paper into three columns. Use the words PLANT, ANIMAL and NON-LIVING as column headings. Letter from A-Z down the side of each column.

TEACHER BACKGROUND INFORMATION

See Teaching Children Outdoors guidelines.

DATA SHEET

ALPHABET HIKE

List as many natural (not man-made) objects as you can find beginning with each letter of the alphabet:

A.

B.

C.

D.

E.

F.

G.

H.

I.

J.

K.

L.

M.

N.

O.

P.

Q.

R.

S.

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U.

V.

W.

X.

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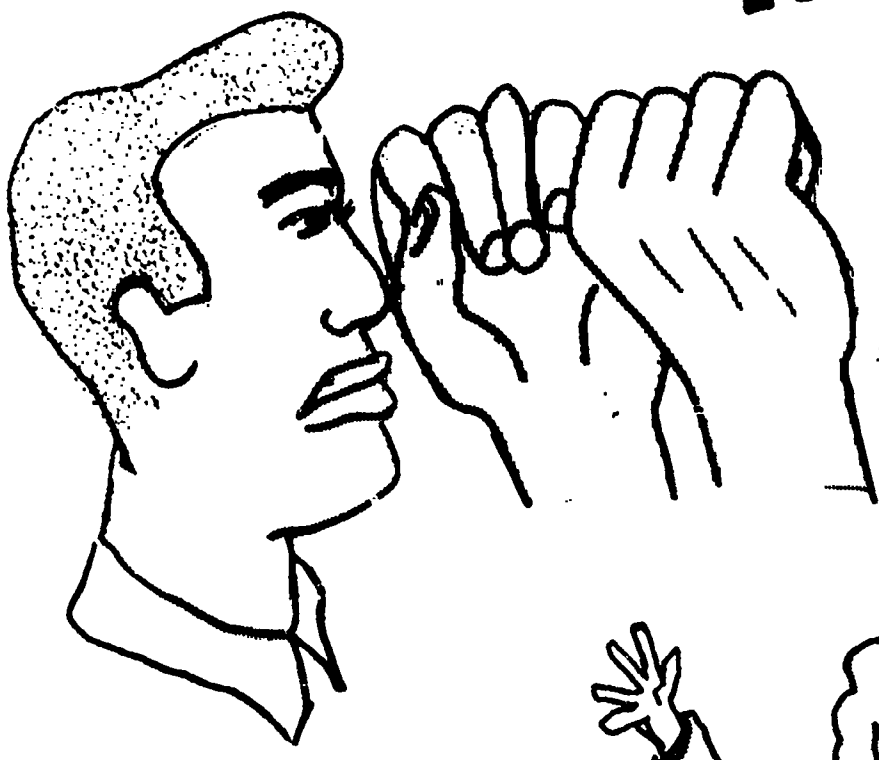
Z.

TOPIC: Observation Skills
SUBJECTS: Soc. Studies, Science, Art
EST. TIME: 35 minutes
GRADE: 3

AW

FETCH AND SKETCH



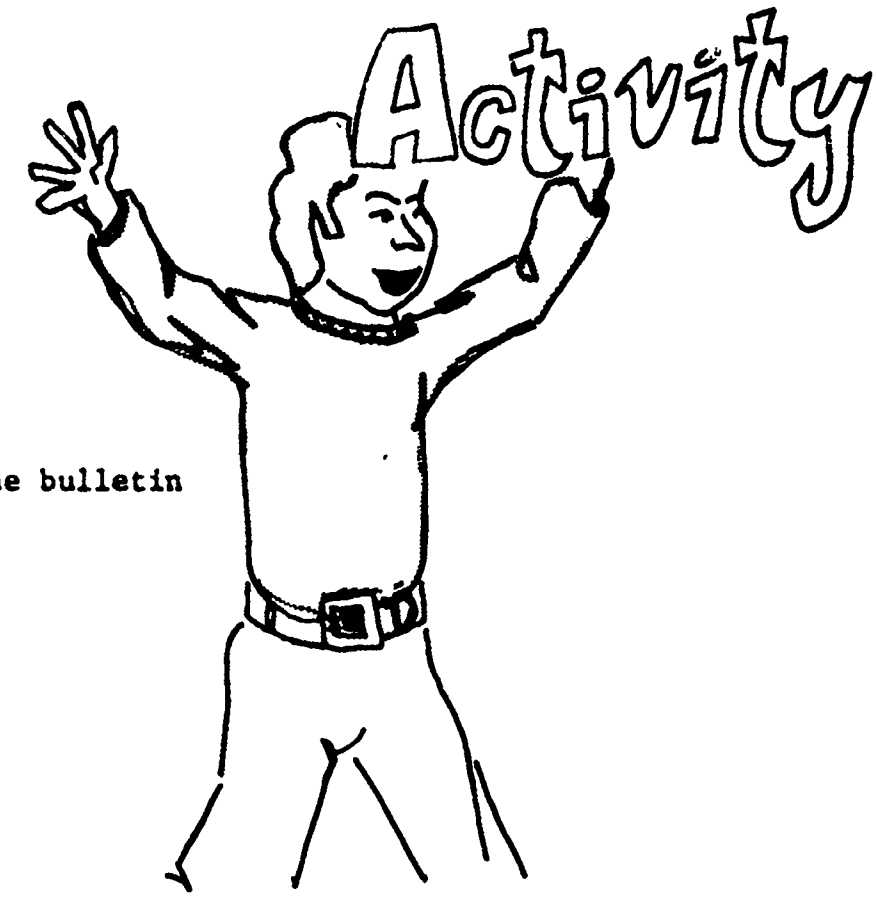
PRE-ACTIVITY (10 minutes)

Practice Task in the Classroom

Show a large picture of a tree. Have the class go through the nine steps listed on Task #1 (see p. 3).

ACTIVITY (20 minutes)

Do Task Card #1 outside, p. 3.



POST-ACTIVITY (5 minutes)

Display Work

Display all art work on the bulletin board.

SUGGESTED ADDITIONAL ACTIVITIES

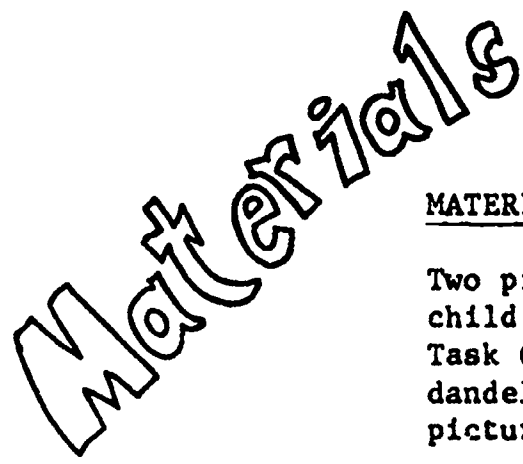
Assign other objects to sketch using the nine step method.

LEVEL V OBJECTIVE

The student will recognize the enormous diversity of life on Earth.

LEVEL VI OBJECTIVE

The student will able to draw a tree found in the local environment.



MATERIALS

Two pieces of drawing paper per child; one crayon per child; one Task Card per child; grass and dandelions available; a large picture of a tree.

TASK CARD #1

Sketching - (15-20 minutes)

Find two trees with different shapes. Observe and sketch one tree at a time.

1. Look at the tree from a distance.
2. With your finger, "trace" (in the air) the shape of the tree. (Do this from the ground up to the top and from top down to the ground).
3. Describe the shape of the tree.
4. Make a "telescope" with your hands. Look through this "telescope" at your tree from a distance.
5. Describe how the branches go out from the trunk. (Up? Out? Down?)
6. Hold out your arms to show how the branches grow out from the tree trunk.
7. Go closer to the tree. What else do you notice about it?
8. Get close to the trunk of the tree. Look up into the tree. What do you see?
9. Go to a comfortable place where you can see your tree. Sketch it with the crayon you brought.
10. Repeat procedure for the second tree.

Add some of nature's color to your sketch. Pick up some grass. Use it as a crayon. Rub it around on the paper to show where the green is on your tree. Pick up a yellow dandelion blosson. Use it as a crayon somewhere on your sketch.

TOPIC: Pot Pourri
SUBJECTS: Art, Lang. Arts
EST. TIME: 45 minutes
GRADE: 3

AW

TOUGH DUFF

PRE-ACTIVITY (5-8 minutes)

Nature Walk and Collection of Natural Litter

Discuss what items are "natural litter." Go outside and find an interesting piece of natural litter.

ACTIVITY (20 minutes)

Riddle

1. Using the five senses write a riddle about the found natural litter. Example: This object is about the size of a small child's fist. It feels something like a scouring pad, but it smells better than that. It smells like warm straw and crackles when I squeeze it by my ear. "What is it?"

2. Guessing Game - Put all found "natural litter" on the classroom floor. Sit in a circle. Students read riddles and class tries to guess the objects.

POST-ACTIVITY (20 minutes)

Art Activity

Get into groups of 4. As a group arrange "natural litter" and paste on cardboard to make a collage.

SUGGESTED ADDITIONAL ACTIVITIES

Make a critter from natural litter.
Classify a group of objects found.

LEVEL V OBJECTIVE

Student will perceive
himself as a part of nature
and will desire to live in
harmony (dynamic balance)
with the rest of nature.

LEVEL VI OBJECTIVE

The student will be able to recognize natural
litter such as leaves, twigs, berries---.

MATERIALS

Natural litter object; paper for writing
riddle; 5-8 large pieces of cardboard;
glue; paint; marker pens.

TEACHER BACKGROUND INFORMATION

Go over the five senses (sight, sound,
taste, touch, smell).

TOPIC: Pot Pourri
SUBJECTS: Math, Art,
Lang. Arts
EST. TIME: 35-40 minutes
GRADE: 3

AW

PLOT STUDY

PRE-ACTIVITY (5 minutes)

Measure a Plot of Ground

1. Give directions as to assigned areas. Every child has an area. Explain that they are going to plot approximately one square yard and study it.

2. Child lies on back, spreads out arms and makes a complete circle. This is his or her area for investigation.

ACTIVITY (10 minutes)

Plot Study

Using Task Card, student will list and draw all of the living and non-living things that he sees. (See Task Card #1)

POST-ACTIVITY (20 minutes)

Discussion - Mural

In the classroom, discuss living and non-living things observed. Make a huge mural on the blackboard of living and non-living objects found.

SUGGESTED ADDITIONAL ACTIVITIES

Math: Count the blades of grass. Count living things.

Lang. Arts: Write a story about the life of a rock or twig.

Art: Pick a rock or twig and paint it.

LEVEL V OBJECTIVE

The student will recognize the enormous diversity of life on the Earth.

LEVEL VI OBJECTIVE

The student will be able to inventory living and non-living material in a local environment.

MATERIALS

Materials

Hand lens for each two students; work sheet for each student; Task Card for each student; five crayon pencils for each pupil.

TEACHER BACKGROUND INFORMATION

Be sure children know the meaning of living and non-living.

TASK CARD #1

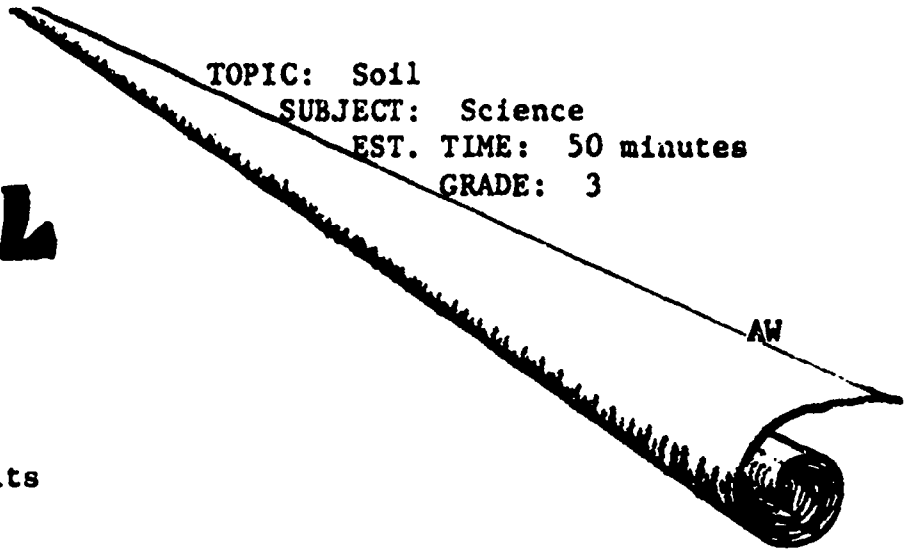
List and draw all of the living and non-living things you see.

LIVING	SKETCH

NON-LIVING	SKETCH

COMPACT SOIL

TOPIC: Soil
SUBJECT: Science
EST. TIME: 50 minutes
GRADE: 3



PRE-ACTIVITY (15 minutes)

Opening Discussion

1. Where does rain water go when it hits the soil? How do you know.

2. Does the texture of the soil make a difference?

3. How can we test soil percolation without waiting for a rain fall?

4. What would you expect to learn?

5. Suggest ways in which we can use these cans to make a test of our theories.

Note: Divide class into three groups and ask them to involve everyone in their group in choosing three different locations to test on the school grounds and in deciding how it will be done and who will do what.

POST-ACTIVITY (15 minutes)

Graph the information collected upon the chalkboard and compare results. Discuss the results.

Activity

ACTIVITY (20 minutes)

Perculation Test

1. Go outside and set up the investigations as planned.

2. Fill each can with a bottom 1/2 full of water.

3. Place the open-ended cans on the ground in the chosen location to be tested.

4. One student should twist the can securely into place and hold it down tightly with his own weight during the investigation.

5. Pour the water into the can on the ground while other student begins timing to see how long it takes for all the water to disappear into the soil.

6. Record the results and repeat on other two locations.

SUGGESTED ADDITIONAL ACTIVITIES

Study erosion problems resulting from groundwater runoff due to slow perculation rates.

LEVEL V OBJECTIVE

The student will understand the composition of soil.

LEVEL VI OBJECTIVE

The student will know the relationship between soil texture and water retention capacity.

Materials

MATERIALS

For each student: A pencil and a pocket-sized field notebook.

For the class: Six #10 size tin cans from the school cafeteria; a stop watch and/or student wrist watches with second hands.

TEACHER BACKGROUND INFORMATION

Access to outdoor water supply helps. Ask the custodian.

Cut one end out of each of three cans. Cut both ends out of each of three more cans. Place all of the materials on the table in front of the class.

TOPIC: Soil
SUBJECTS: Art, Lang. Arts
EST. TIME: 60 minutes
GRADE: 3

AW

DIRTY DIRT

PRE-ACTIVITY (15-20 minutes)

Observe - Discuss

Give a soil sample to each pair of students. Students analyze soil sample on desk with partner:

1. Is all soil the same color?
2. Students then describe color of soil and texture in writing.
3. As a group, share ideas with class.
4. How many colors of soil would you predict you could find on the playground?
5. List colors you'd expect to find on the playground.

   Explain the locations of the areas (4 or 5) from which partners will collect soil samples for activity below.

ACTIVITY (45 minutes)

Make a Soil Mural

1. With a partner, go to each of the assigned 4 or 5 areas and collect a small sample of different textured soils or gravel. (Collect natural boundaries like twigs, needles, small cones, etc.)
2. Using a 5 x 7 card, glue the natural boundaries on the card.
3. Apply glue evenly to cover one area and apply soil thickly.
4. Shake off excess after dry.
5. Do others like above.
6. Using hand lens, analyze soil collages.

POST ACTIVITY (at home)

1. Children in the same neighborhood make a collage as a group project. Compare neighborhood collages.

2. Make another soil collage at home or bring a baby jar filled with a sample of soil - compare colors and texture of your's to your neighbor's.

SUGGESTED ADDITIONAL ACTIVITIES

Lang. Arts: Write a story about being a little bug in the soil that was collected.

Soc. Studies: Compare soil texture of sandy areas, rocky areas, meadows, etc. Discuss what things will grow in the various soil textures and colors.

LEVEL V OBJECTIVE

Students will understand the composition of soil.

LEVEL VI OBJECTIVE

The student will be able to identify the physical characteristics of soil such as: texture, color, particle size, etc.

MATERIALS

Materials

For every two students: Jelly cup or paper towel containing small soil sample; glue; hand lens.

TEACHER BACKGROUND INFORMATION

You might need to explain the meaning of the word "texture" before you begin lesson. Areas for collecting soil could include:

1. Under a tree
2. On the playground
3. Rotting log or stump
4. Flower bed
5. Baseball diamond

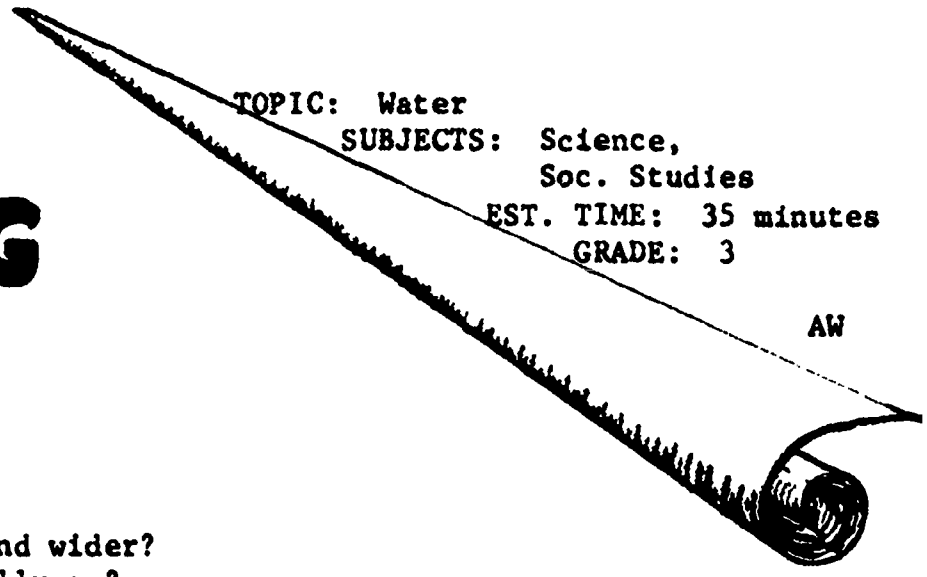
Possible color and texture descriptions could include:

Texture: Gritty, smooth, slick, not very sticky, very sticky, plastic
Color: Dull gray, yellow, red-brown, black, mottled gray

STREAM SORTING

TOPIC: Water
SUBJECTS: Science, Soc. Studies
EST. TIME: 35 minutes
GRADE: 3

AW



Activity

PRE-ACTIVITY (10 minutes)

Discuss Gully Erosion

1. What do you know about gully erosion?
2. What makes a gully grow deeper and wider?
3. Where do the materials in the gully go?
4. Can we predict where different sized particles may be found?
5. Discuss the gullies found around the school and choose one as a class for observation.

ACTIVITY (15 minutes)

Go outside to Observe

1. What do you see when you look at this gully?
2. Where is the deepest and widest part of the gully?
3. As you observe the bottom of the slope, what do you see?
4. Are the particles separated according to size?
5. In what order (large to small) are the particles arranged?
6. What can we conclude about the size of the particles related to their arrangement by the stream?
7. Can you compare this observation with other gullies?

POST-ACTIVITY (10 minutes)

Class Discussion

1. Draw diagrams of streams on a chalk board (from the source to the mouth).
2. Compare streams by age:
   A. Youthful Gullies - Deep, steep-walled, V-shaped grooves containing little or no sediment in the streambed.
   B. Meandering Streams: Snake-like streams, U-shaped or flat bottomed shallow banked channels containing considerable amount and varying sizes of sediment on the stream bed.
   C. Deltas - The triangular mouth of a river meeting a lake or sea formed by great amount of sediment caused by slowing water and continually changing streamlets of the river.
3. What land features affect the speed of water and the amount of materials which erode away?
4. How does this change the environment?
5. How can these changed areas be used by man in the future?
6. How can these change processes be slowed or prevented?

SUGGESTED ADDITIONAL ACTIVITIES

Observe raindrop erosion using a marked splatter stick to measure height of splatter erosion resulting from an "exploding" raindrop.

LEVEL V OBJECTIVE

The student will understand the composition of soil.

LEVEL VI OBJECTIVE

The student will be able to recognize the following landforms associated with gully erosion; emerging gullies, meandering streams, and deltas.

Materials

MATERIALS

Pencil and pocket notebook for each student to record their observations.

TEACHER BACKGROUND INFORMATION

Look over this situation carefully before taking your children outside. You may want to review the processes of stream erosion found in a geography book. Also refer to the guidelines for Teaching Children Outdoors.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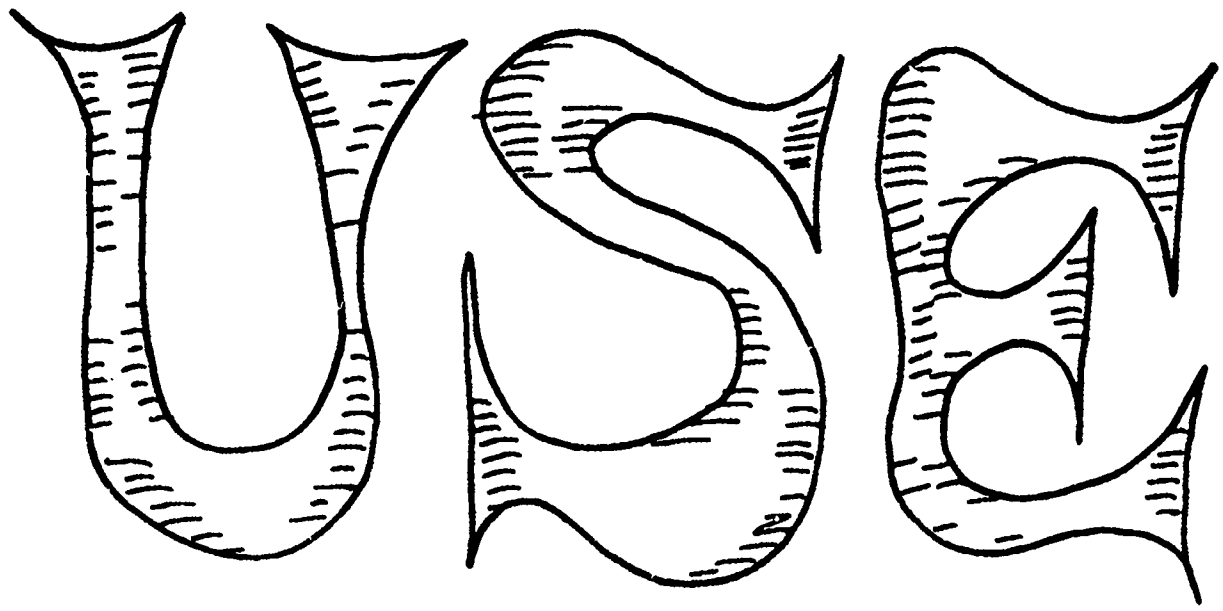
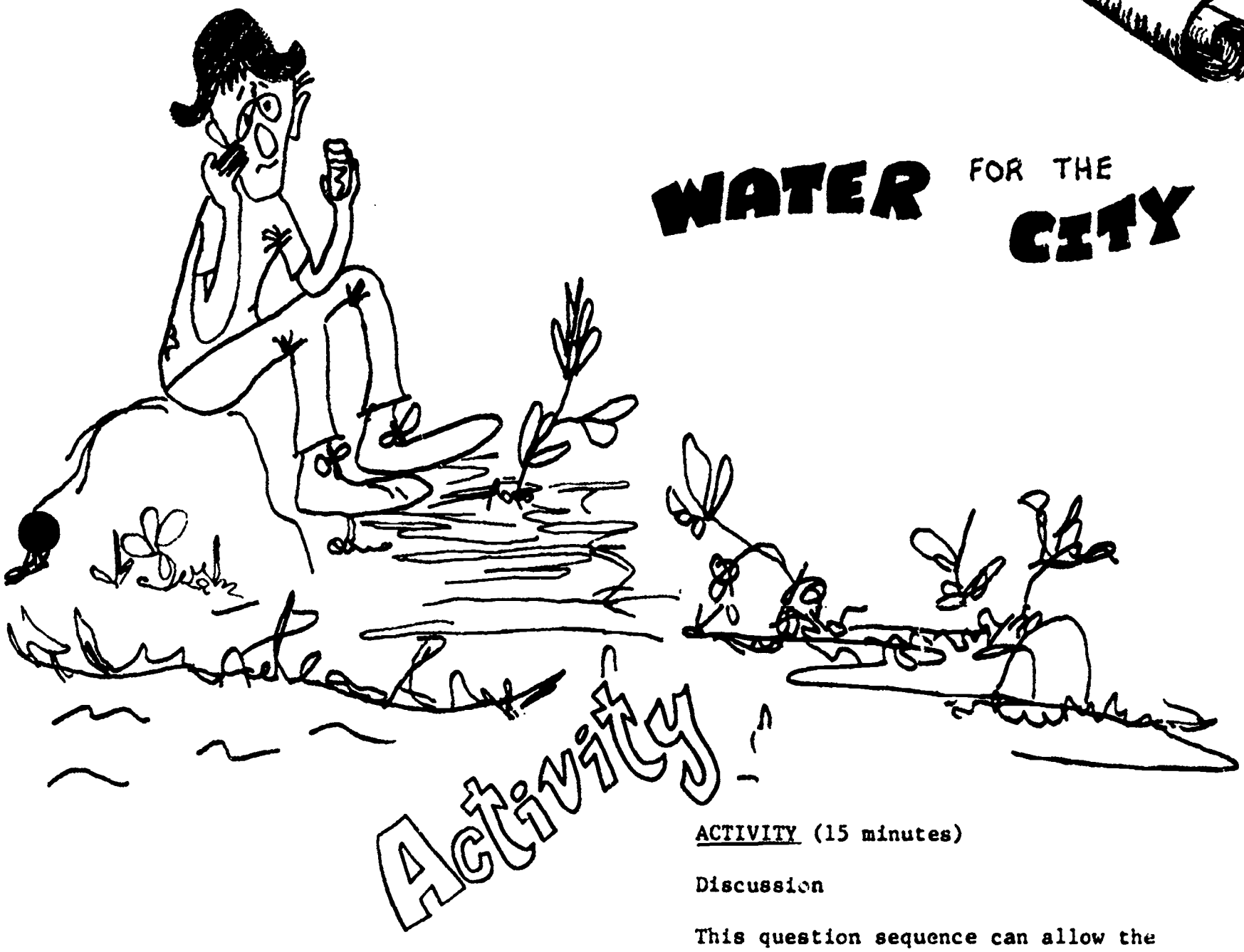

USE

TOPIC: Water
SUBJECT AREAS: Science, Math
Lang. Arts
ESTIMATED TIME: 45 minutes
GRADE: 3

MU

WATER FOR THE CITY



PRE-ACTIVITY (10-15 minutes)

Show the film "Water for the City," EF 461

ACTIVITY (15 minutes)

Discussion

This question sequence can allow the group to interpret their own observations.

1. What did you see in the film?

2. What are some specific places from which cities obtain water (list all responses on the board)?

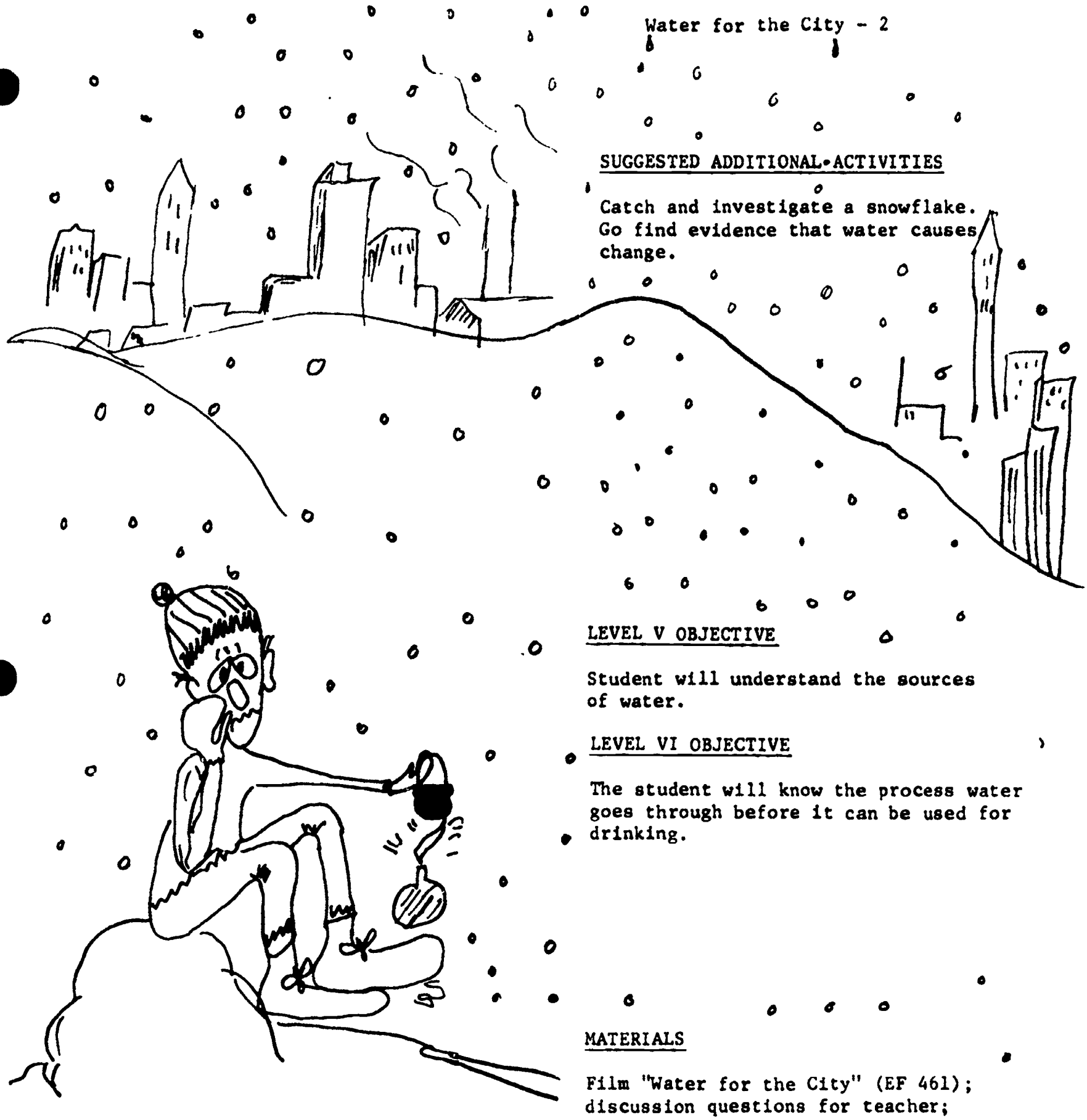
3. What is done to all water before it comes to the cities?

4. From what you saw in the film, and from our discussion, what can you say about water sources?

POST-ACTIVITY (10 minutes)

Snow Experiment

In winter when there is snow on the ground, do Task A (see page 3).



SUGGESTED ADDITIONAL ACTIVITIES

Catch and investigate a snowflake.
Go find evidence that water causes change.

LEVEL V OBJECTIVE

Student will understand the sources of water.

LEVEL VI OBJECTIVE

The student will know the process water goes through before it can be used for drinking.

TEACHER BACKGROUND INFORMATION

The use of certain kinds of questions can help establish a learning climate that will encourage participation, discussion and interaction during the lesson.

MATERIALS

Film "Water for the City" (EF 461); discussion questions for teacher; two cups for each group for Task 1.

RESOURCES

Lander Conservation Center, 1972

TASK CARD #1

Find out: How many cups of snow does it take to make one cup of water? Do this experiment twice and show your results on the chart.

	NUMBER OF CUPS OF SNOW IT TAKES TO MAKE ONE CUP OF WATER
FIRST TIME	
SECOND TIME	

TOPIC: Water
SUBJECTS: Science, Lang. Arts
EST. TIME: 2 hours
GRADE: 3

MU

Activity

WATER WORKS

PRE-ACTIVITY (20 minutes)

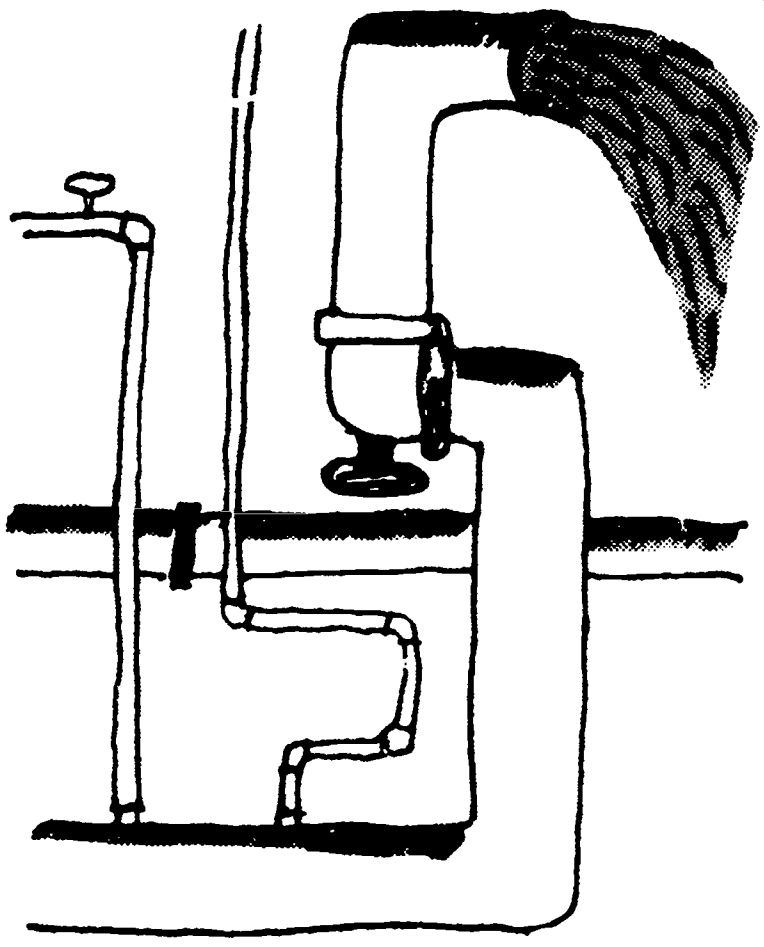
Planning the Trip

See p. 3

ACTIVITY

Trip to the Water Works

Each student should have the question sheet with them (pre-activity) and check off questions as each one is answered.



POST-ACTIVITY

Diagram

1. Student will complete (label, color and draw in the city) a diagram of the trip of a water drop from a cloud to his faucet (see p. 4), or draw a mural, by drawing his own house and putting it up.

2. Questions for Discussion - discuss question sheet during this discussion. Also use maps and picture of reservoirs (p. 4, 7, and 8).

   1. What did you see and hear at the waterworks?

   2. What are some things that help us to have pure, clean water?

   3. Why are there two different methods of making water pure and clean?

   4. What can you now say about the water in our school and in your home regarding its source and its treatment?

SUGGESTED ADDITIONAL ACTIVITIES

Use water cycle chart to show the evaporation phase of the water cycle (see p. 5 and 6).

LEVEL V OBJECTIVE

Student will understand the source and treatment of water.

LEVEL VI OBJECTIVE

The student will know the process water goes through before it can be used for drinking.

MATERIALS

"Planning for the Field Trip" ditto for each pupil (p. 3); map for each student (p. 4); water cycle chart for each student (p. 5. and 6); overhead transparencies (p. 7 and 8), optional

TEACHER BACKGROUND INFORMATION

This lesson should be taught following the lesson on Water for the City.

RESOURCES

3M Company
Ernie and Char McDonald
Alderwood Water District

Contact:

1. City of Edmonds Public Works, Water Department, 200 Dayton Street Edmonds, WA Phone - 775-2525
2. Jude Petrie, Educational Service Center, Edmonds, WA
3. Alderwood Water District, Alderwood Manor, WA

PLANNING FOR THE FIELD TRIP TO THE WATER WORKS

As a class, discuss the following questions. Accept all student responses, and list them on the board. Group responses according to similarities, so there are about three big items to be listed under each question.

1. Based on what you already know about water, our group would like to find out more about:

___ A.

___ B.

___ C.

2. The questions we will ask to find out these things are:

___ A.

___ B.

___ C.

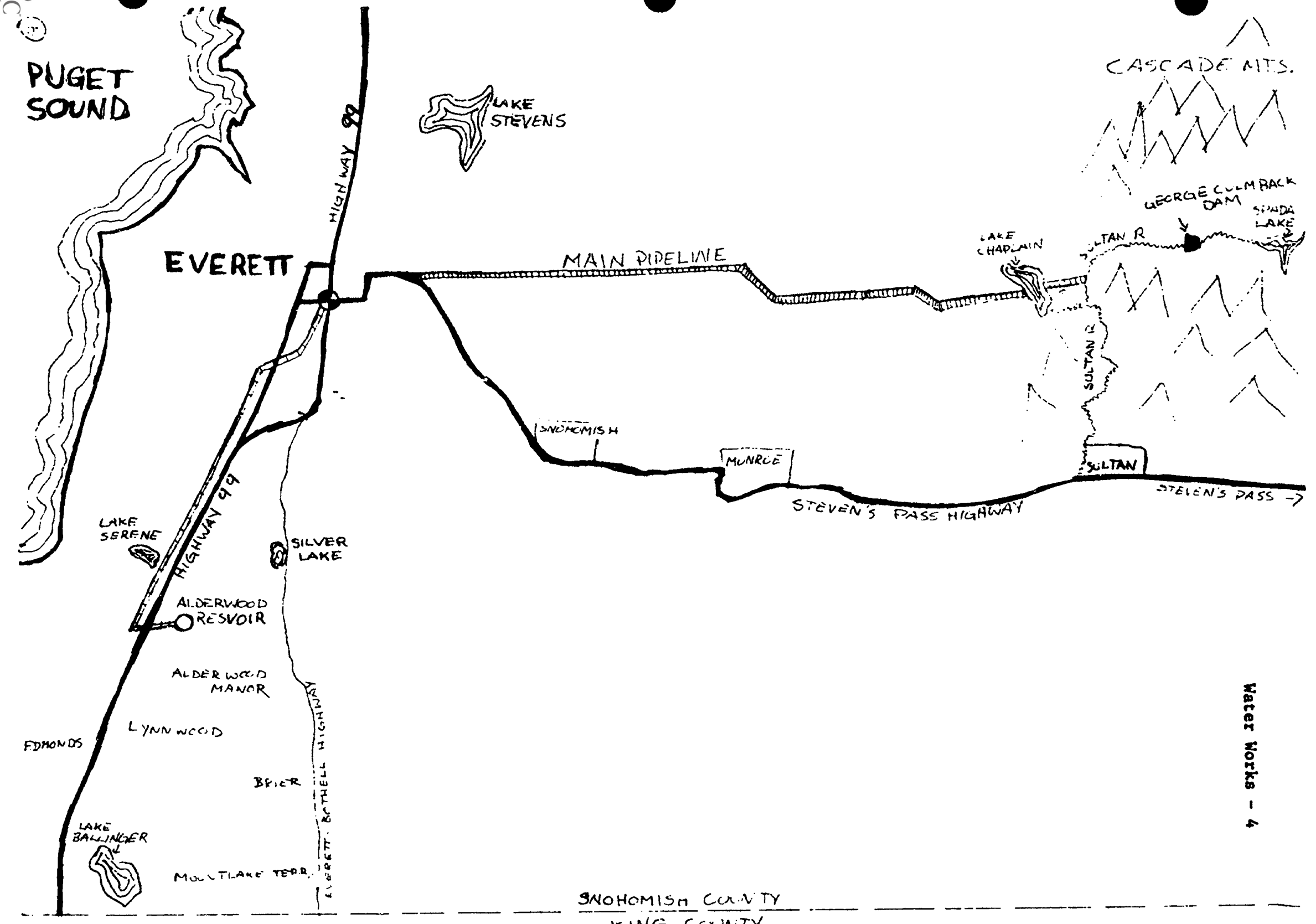
3. In order to find out more about these things, (from #1) we will look for:

___ A.

___ B.

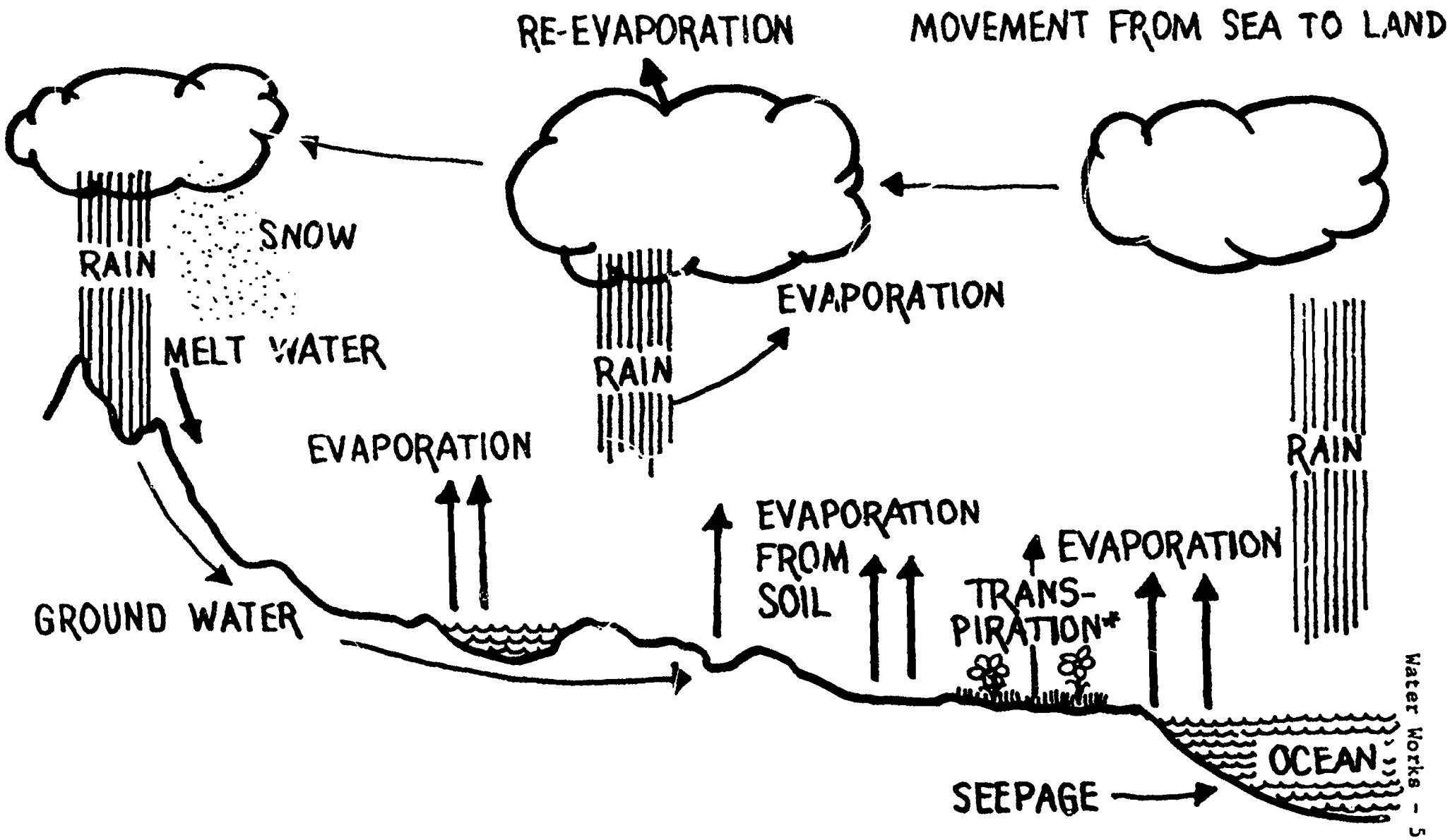
___ C.

Take this questions sheet with you on your trip. As questions are answered, check them off on the line provided.



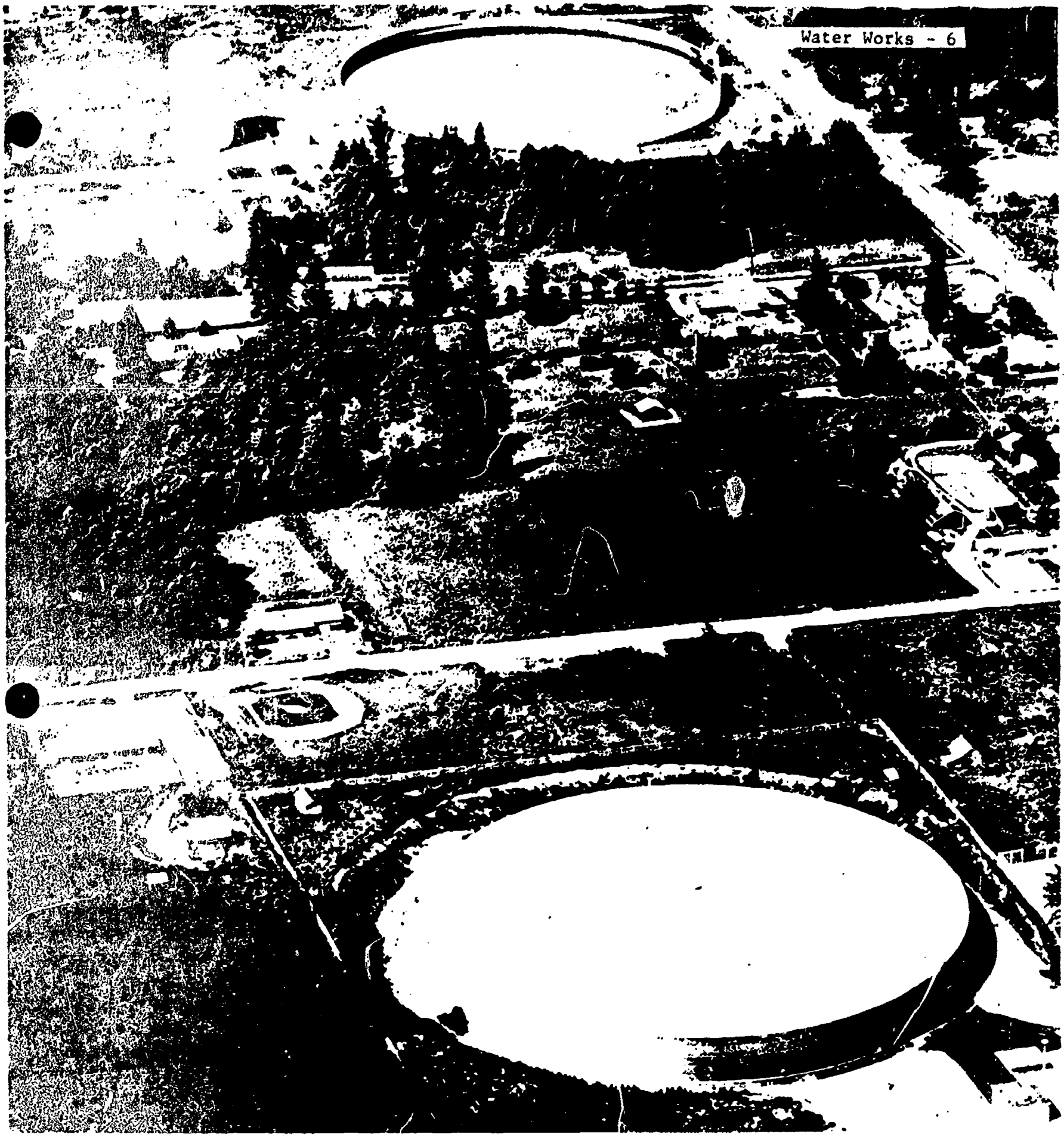
Water Works - 4

WATER CYCLE



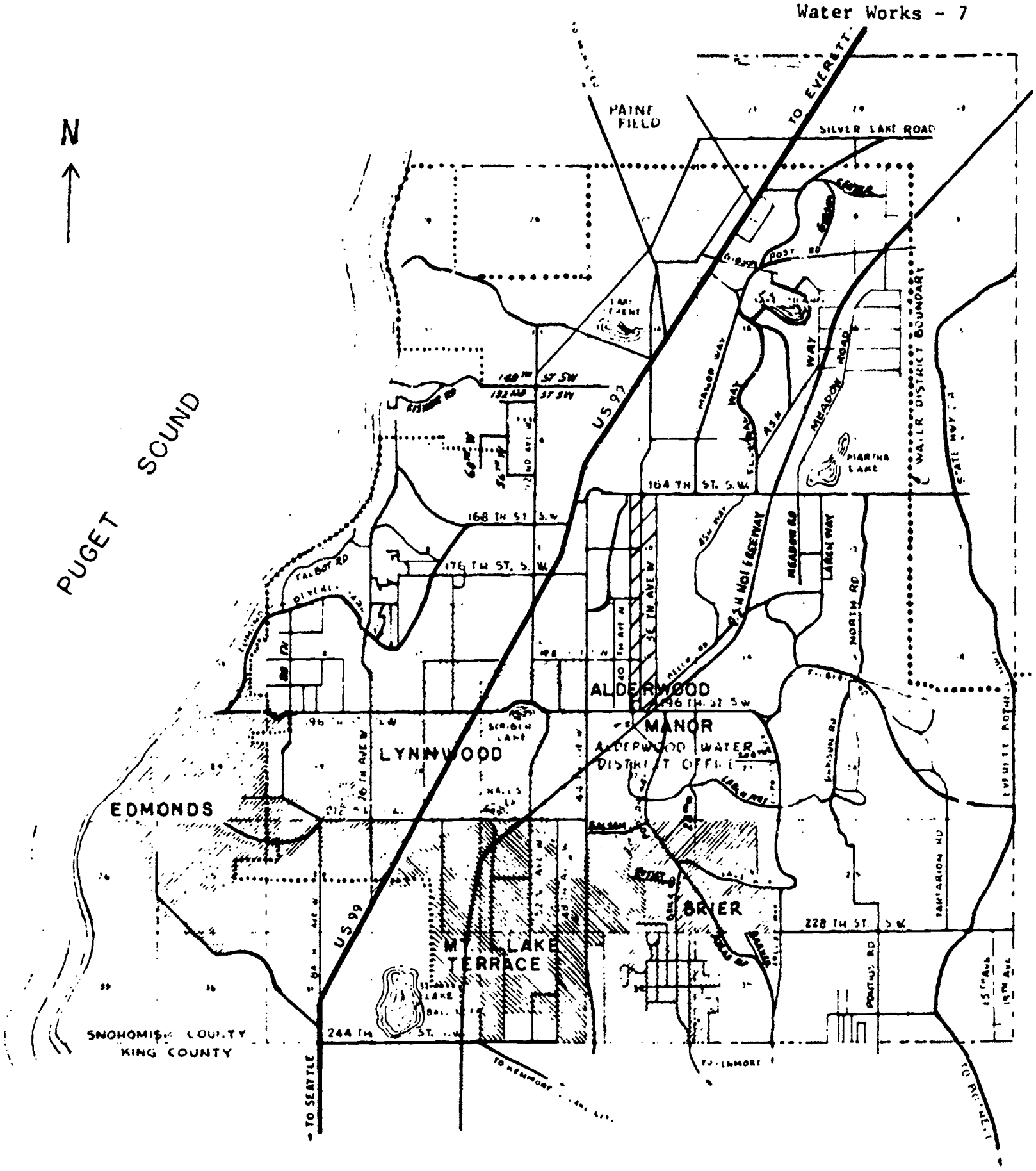
— WATER CYCLE GREATLY ALTERED BY HUMAN CONSUMPTION —

— *TRANSPIRATION CONTRIBUTES MORE WATER TO ATMOSPHERE THAN EVAPORATION FROM SOIL.



... prime source area located ... W... east of Highway ... District's second 28 million ... or which was completed ... reservoir was constructed ... Water Company. It is ... in the ... gallon reservoirs and four smaller reservoirs the District's total ... million gallons.

The 1969 yearly consumption was ... gallons. On June 16, 1969 there was ... of 32,000,000 gallons per day and the total ... for the same day was 20,000,000 gallons. ... the average daily consumption for the ... gallons per day.



ALDERWOOD
WATER
DISTRICT

ALDERWOOD MANOR
WASHINGTON

TOPIC: Water
SUBJECTS: Lang. Arts, Math, Art, Soc. Studies
EST. TIME: 50 minutes
GRADE: 3

GALLONS AND GALLONS

PRE-ACTIVITY (20 minutes)

Discuss Gallons and Gallons

1. Show and discuss information on p. 4.
2. Ask students to bring gallon containers, until you have 30 gallons.
3. Illustrate one of the concepts on p. 4.

Activity

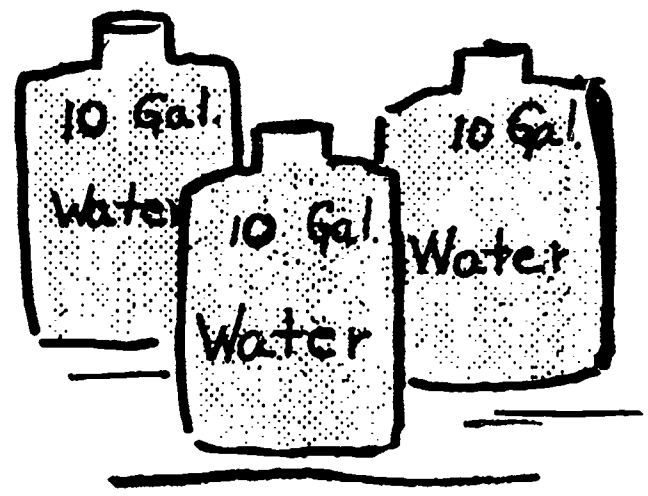
ACTIVITY (Day 1 and 2; 5 minutes each.
Day 3; 20 minutes)

Do Task 1, p. 3.

POST ACTIVITY (Home Assignment)

Students are to:

1. Watch Mother prepare dinner. List the number of times and purposes for which she used water.
2. Calculate number of gallons of water it took to do family laundry for one week (30 gallons for one load of wash).



SUGGESTED ADDITIONAL ACTIVITIES

Lang. Arts: Create a commercial about water.

Make a list of water words.

LEVEL V OBJECTIVE

Student will understand the various uses of water.

LEVEL VI OBJECTIVE

The student will know the different ways that water is used each day, such as drinking, washing, watering plants---.

MATERIALS

Materials

Holt-Reinhart, "Inquiring About Cities," or information about p. 4. Drawing paper and crayons for each child; Task Cards for each child; 30 gallon containers.

TEACHER BACKGROUND INFORMATION

Suggest running off a diary form for each student on a ditto machine.

RESOURCES

"Gallons and Gallons," p. 226-227; Holt Databank System, "Inquiring About Cities," William R. Fielder, General Editor; Holt, Reinhart and Winston, 1972.

TASK CARD #1

1. Make a list of all the ways you used water today. Also keep track of this tomorrow and the next day.

2. Now look at your lists. Did you use the water the same way every day?

3. What are some ways in which you have used water before, but not in these three days?

4. How might your best friends list be different from yours?

5. Does everyone use the same amount of water each day?

GALLONS AND GALLONS

Do you know how much water it takes to run a washing machine one time?

Do you know how much water it takes to grow wheat for one loaf of bread?

Do you know how much water is needed to make steel for one car?

Do you know how much water is used to make one ton of rubber for tires?

Well, it is more than a drop in the bucket!

It takes 30 gallons of water to run a washing machine one time.

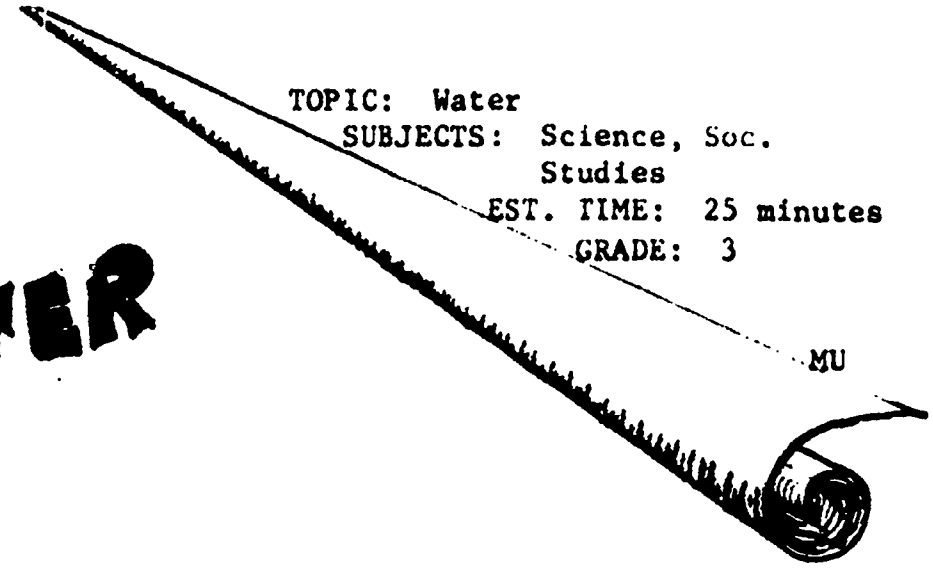
It takes 300 gallons of water to grow wheat for one loaf of bread.

It takes 40 thousand gallons of water to make steel for one car.

It takes 660 thousand gallons of water to make one ton of rubber for tires.

TOPIC: Water
SUBJECTS: Science, Soc. Studies
EST. TIME: 25 minutes
GRADE: 3

DRATTY DIRTY WATER



PRE-ACTIVITY (5-10 minutes)

Preparation

Get into groups and organize the gathering of materials for the water experiment (see p. 2).

Activity

ACTIVITY (10 minutes)

Experiment on Polluted Water

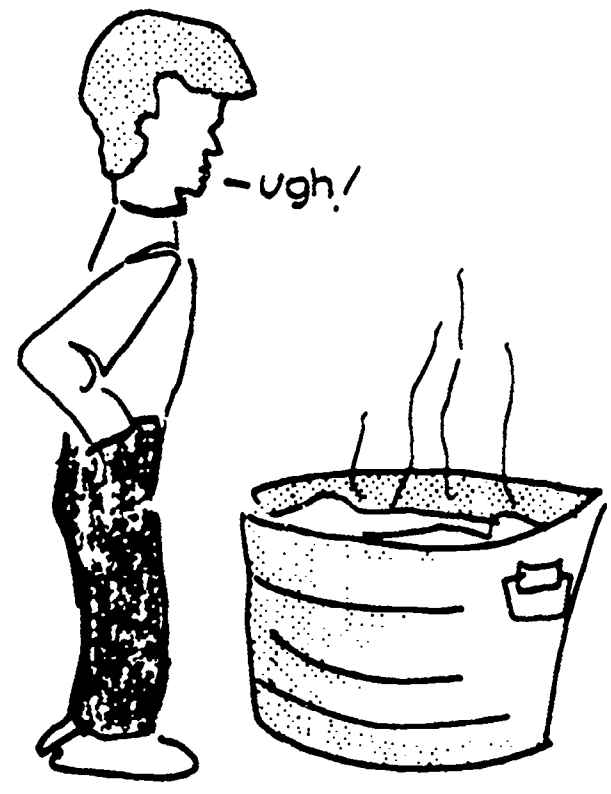
In groups, fill a tank or large pot with water. Deliberately pollute the water in the container with various substances like oil, dirty dishwater, muddy water, floor sweepings. Feel the water before and after polluting it.

POST-ACTIVITY (10 minutes)

Discussion

Discuss how water "in real life" gets polluted. How can water pollution be stopped?

Have a resource person come and speak on the causes of water pollution in your community (see Teacher Background).



SUGGESTED ADDITIONAL ACTIVITIES

Play game "Dirty Water."

LEVEL V OBJECTIVE

Student will recognize various pollution problems, their causes and effects.

LEVEL VI OBJECTIVE

The student will know that various substances such as oil, dirty dishwater, and and floor sweepings can cause water pollution.

MATERIALS

Materials

Large pot or can for each group; items for polluting water such as sweepings from the floor, dishwater, etc.

TEACHER BACKGROUND INFORMATION

See your local Coordinator of Community Volunteers for research people to come and speak to your class.

In Edmonds School District, contact Jude Petrie, Educational Services Center.

TOPIC: Soil
SUBJECTS: Science, Lang. Arts, Math, Soc. Studies
EST. TIME: 45 m.n.
GRADE: 3

EROSION

Activity

PRE-ACTIVITY (15 minutes)

Film Discussion

Show film on erosion: "Erosion" EF 34, or "Erosion - Leveling the Land" EF 1362.

Discuss and define erosion.

POST-ACTIVITY (20 minutes)

Project Group

How do you think erosion could be stopped? Get into groups - list ways. Decide on a place where erosion is taking place and improve it.

ACTIVITY (10 minutes)

Experiment

Select two hilly sites, one without plants, one with grass or weeds. Pour one gallon of water slowly down hill #1. Observe what happens.

Rapidly pour one gallon of water down the same hill. Observe what happens. Do the same things with hill #2.

Answer the following questions:

Tell what happened each time:

HILL #1

A.

B.

HILL #2

A.

B.

Which one showed erosion?

Why?

SUGGESTED ADDITIONAL ACTIVITIES

Art: Make charts showing erosion, its effects, how to prevent it.

Math: Record the time average of water running down the hill with plants and down the hill without plants.

Soc. Studies: Locate areas where erosion has taken place. What effects has it had on the land? Where are people trying to prevent erosion or improve upon the problem. What are they doing?

LEVEL V OBJECTIVE

Student will understand the composition of soil and erosion.

LEVEL VI OBJECTIVE

The student will know the erosion effect of water on a grass covered hill and on an open hill

MATERIALS

Materials

Films on erosion; four gallon containers filled with water; paper and pencil for each student.

TEACHER BACKGROUND INFORMATION

Question sequence that could be used after the activity:

1. What did you notice during the experiment?
2. What were some of the differences between the two hills.
3. How do you account for these differences?
4. From what you've seen today, what can you say about erosion?

DOWN ON THE FARM

TOPIC: Pot Pourri
SUBJECTS: Soc. Studies, Science
EST. TIME: 2 1/2 hrs.
GRADE: 3

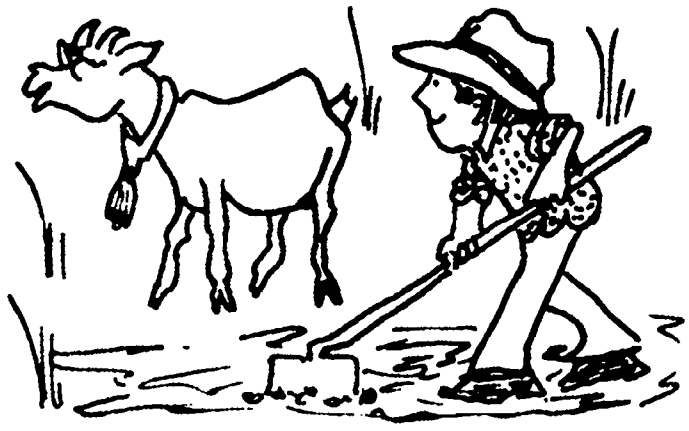
MU

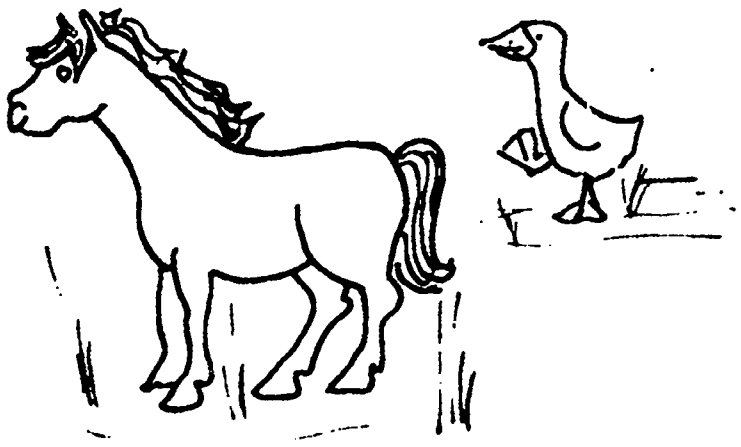
Activity

PRE-ACTIVITY (10 minutes)

Food for Thought:

1. Ask children what they ate for dinner last night.
2. Ask children where each item of food came from (animals and plants).
3. How long does it take to produce food?
4. What is required time to produce food?
5. What are some resources necessary to produce food?
6. What is our food raised?
7. Would you like to visit a farm?





ACTIVITY (2 hour field trip, plus travel time.

Visit a Farm

1. What crops are raised?
2. What animals are raised?
3. Which ones are used by the farm?
4. Which ones are used by city people?
5. How is animal manure used on the farm?
6. How does the local environment influence farm work.
7. How does the farm affect the natural environment?
8. What can we say about the value of a farm to people? ...to the environment?
9. Spend two minutes sitting quietly in a farm meadow, looking, listening, smelling, feeling and thinking... then describe how you feel about being in this environment.

POST-ACTIVITY (20 minutes)

1. How does farm life contribute to the life of the area we live in?
2. Spend two minutes sitting quietly in classroom, looking, listening, smelling, feeling and thinking.
3. Share the feelings about the above compared with being in a farm meadow.
4. How is the farm environment changing?
5. How does this affect our future?

SUGGESTED ADDITIONAL ACTIVITIES

Visit special product farms (monoculture farms) such as a blueberry farm, strawberry farm, dairy farm, chicken farm, holly farm, tree farm; compare similarities and differences.

LEVEL V OBJECTIVE

1. The student will be able to identify plants and animals of his local environment.

2. Students will comprehend relationships among organisms and their non-living environment.

3. Students will understand physical, economic and human factors involved in land use decisions.

4. Student will perceive himself as a part of nature and will desire to live in harmony (dynamic balance) with the rest of nature.

5. Student will consider a spcific environmental problem from many different viewpoints, e.g. ecological, social political, economic, aesthetic, cultural and empathy for individuals affected, etc.

LEVEL VI OBJECTIVE

The student will know that farm and city communities are interdependent.

Materials

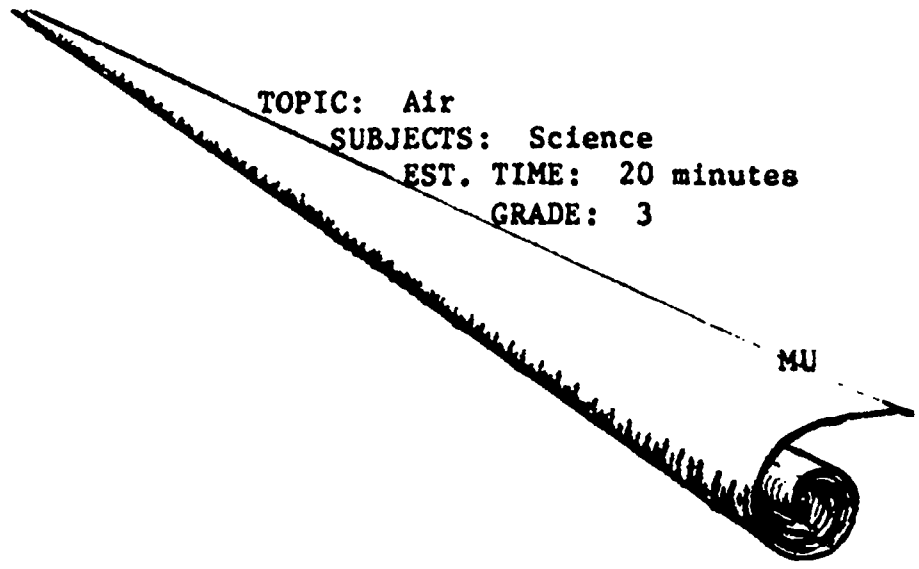
MATERIALS

Paper and pencil and proper clothing.

TEACHER BACKGROUND INFORMATION

Arrange in advance for a visit to a local family farm near your area. Also refer to the guidelines for Teaching Children Outdoors.

DIRTY AIR



Activity

PRE-ACTIVITY (10 minutes)

Preparation

Divide into groups. Gather cloth and tape. Decide locations for placing cloth. Put cloth in a horizontal position.

ACTIVITY (10 minutes on 2 days)

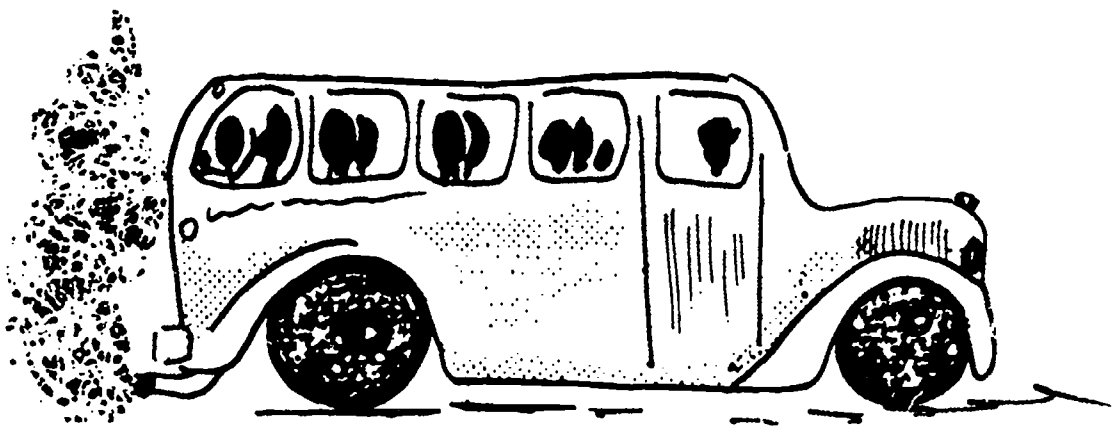
Air Experiment

Put a clean white cloth or paper on the school grounds in various places. After 24 hours, see what has happened to it. Try to find where any dirty matter on the cloth or paper came from. Analyze it with hand lens or microscope. Compare the locations.

POST-ACTIVITY (Home work assignment)

Additional Experiment

Do the same activity as above at home or near an industrial site.



SUGGESTED ADDITIONAL ACTIVITIES

Do this same experiment at home.

LEVEL V OBJECTIVE

Students shall recognize various pollution problems, their causes and effects.

LEVEL VI OBJECTIVE

The student will know that air normally contains particulate matter.

Materials

MATERIALS

Clean white cloth or paper; tape; paper and pencil; hand lens; microscope.

TEACHER BACKGROUND INFORMATION

Tape the cloth outside overnight, too. Encourage students to place their cloths in a wide variety of locations (in the classroom).

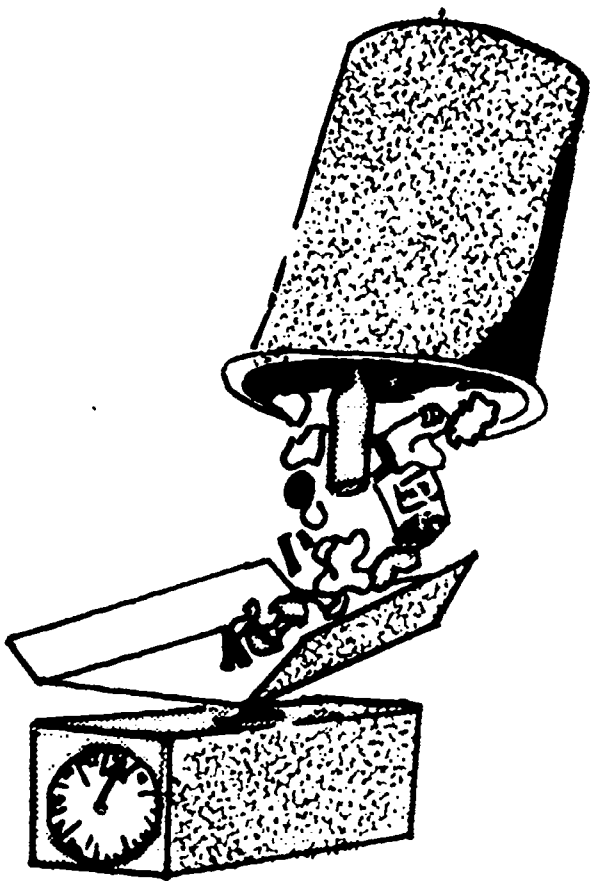
PROBLEM SOLVING

TOPIC: Litter
SUBJECTS: Social Studies, Math
EST. TIME: 60 minutes
GRADE: 3

LITTER ROOM

PRE-ACTIVITY (5 minutes)

Arrange with janitor and principal to not remove trash from room for one week and also to put sweepings from floor into boxes in the room. Set up extra boxes to store trash for the week. Variation: Allow the litter to accumulate on the floor untouched for a week.



Activity

ACTIVITY (15 minutes each day)

Collect and weigh trash for one week under normal circumstances. Weigh the total amount.

POST-ACTIVITY (20 minutes)

Compute mathematically the approximate weight of weekly classroom trash in the school. Discuss the effect this has on the environment if we multiply this amount times each school. Discuss: Where does it all go? What can we do to make a difference?

SUGGESTED ADDITONAL ACTIVITIES

Get samples from other classrooms in same manner for more accurate results.

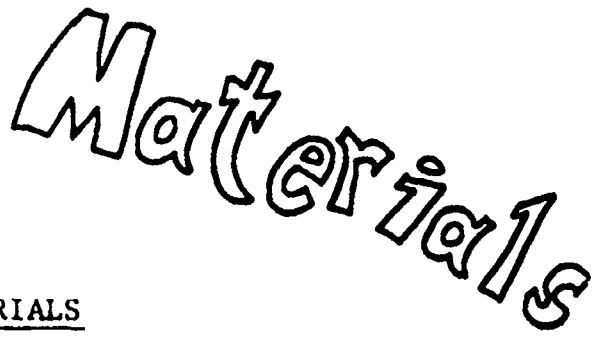
LEVEL V OBJECTIVE

1. Students shall recognize various pollution problems, their causes and effects.

2. The students will know means of effecting change to environmental problems.

LEVEL VI OBJECTIVE

The student will know the typical weight weight of one week's classroom trash.



MATERIALS

1. Baby scale or health room scale.

2. Trash

3. Trash cans or boxes

TEACHER BACKGROUND INFORMATION

Get enough cardboard boxes to store trash for one week and locate a scale for weighing.

TOPIC: Litter
SUBJECTS: Science, Math, Social Studies
EST. TIME: Several Days
GRADE: 3

WASTE PAPER

Activity

PRE-ACTIVITY (20 minutes)

Students List Wastepaper

1. On a scrap piece of paper, list the ways you and others waste paper in class.
2. Exchange papers and compare lists.
3. With the teacher, combine the ideas to make a class list on white butcher paper.
4. Hang combined list on bulletin board in room as a reminder.
5. Discuss methods for conserving paper in the room.

ACTIVITY (One week)

1. For one week, collect whole sheets of paper, not torn or crumpled, and put paper into two boxes labled as follows:
   A. Completely Used Paper
   B. Partly Used Paper
2. At the end of the week, weigh both piles and record the results as a class.
3. Have children tear or cut the blank excess from partly used sheets.
4. As a class, weigh the above and determine approximately how much of all paper was needlessly wasted.

POST ACTIVITY (As you wish)

Paper Corner

1. Establish a corner of the room for recycling scrap paper by color, size, purpose, etc. (Keep scissors handy.)
2. Encourage each student to deposit and use partially used paper in that corner.

SUGGESTED ADDITIONAL ACTIVITIES

Repeat this activity several weeks later to see if students have become aware of saving paper.

Share results with other rooms in the school through bulletin boards, individual presentations, Student Council or the school paper.

LEVEL V OBJECTIVE

1. Students shall recognize various pollution problems, their causes and effects.

2. Students will differentiate between renewable, non-renewable and reclaimable resources.

3. Student will perceive himself as a part of nature and will desire to live in harmony (dynamic balance) with the rest of nature.

LEVEL VI OBJECTIVE

The student will know the weight of paper wasted in a classroom during a week's time.

MATERIALS

Scissors; ball of twine; cardboard boxes; wastepaper from the classroom

RESOURCES AND CREDITS

THE ORGANIC CLASSROOM - Rodale Press
RECYCLING - Rodale Iress

TOPIC: Litter
SUBJECT: Social Studies
EST. TIME: 50 minutes
GRADE: 3

PAPER CAPER

Activity

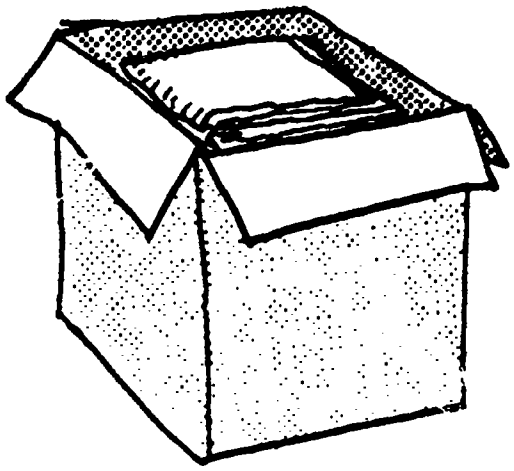
PRE-ACTIVITY (10 minutes)

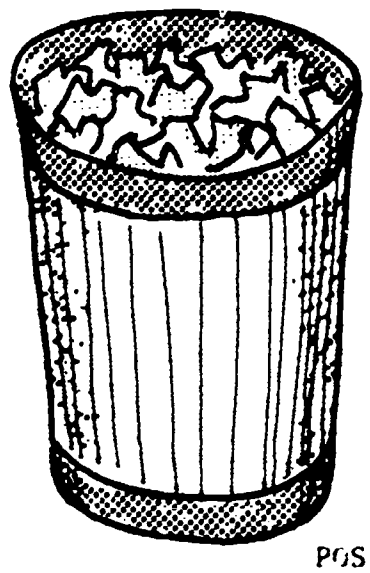
Discuss the amount or volume of paper, etc., thrown away at school.

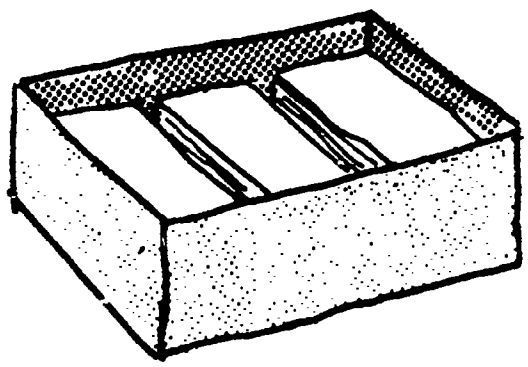
How can we determine the most effective way to store paper litter in the least amount of space?

ACTIVITY (5 minutes each day)

Have teams of students collect paper and store in containers. Have students explore ways to get the most paper litter in the containers, after developing a criteria for determining the greatest amount stored in the least space.







POST-ACTIVITY (15 minutes)

Determine the amount of paper collected. Determine if the litter paper was most effectively used before being thrown away. Find out which containers hold the most weight of paper in the least amount of space. Plan a method for easy disposal of class paper to collect in the least amount of space during the rest of the year.

SUGGESTED ADDITIONAL ACTIVITIES

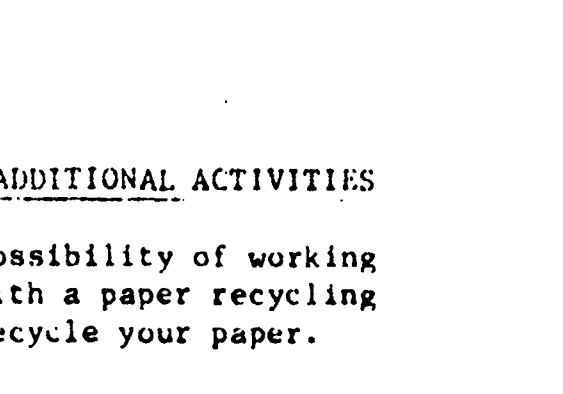
Research possibility of working together with a paper recycling plant to recycle your paper.

LEVEL V OBJECTIVE

Students will recognize various pollution problems, their causes and effects.

LEVEL VI OBJECTIVE

The student will know that some methods of storing waste paper require less room than others.



MATERIALS

Boxes or containers;
units of measure

TEACHER BACKGROUND INFORMATION

Calculate the volume in containers using many units of measure and math skills.

TOPIC: Litter
SUBJECTS: Art and Crafts, Social Studies
EST. TIME: 55 minutes
GRADE: 3

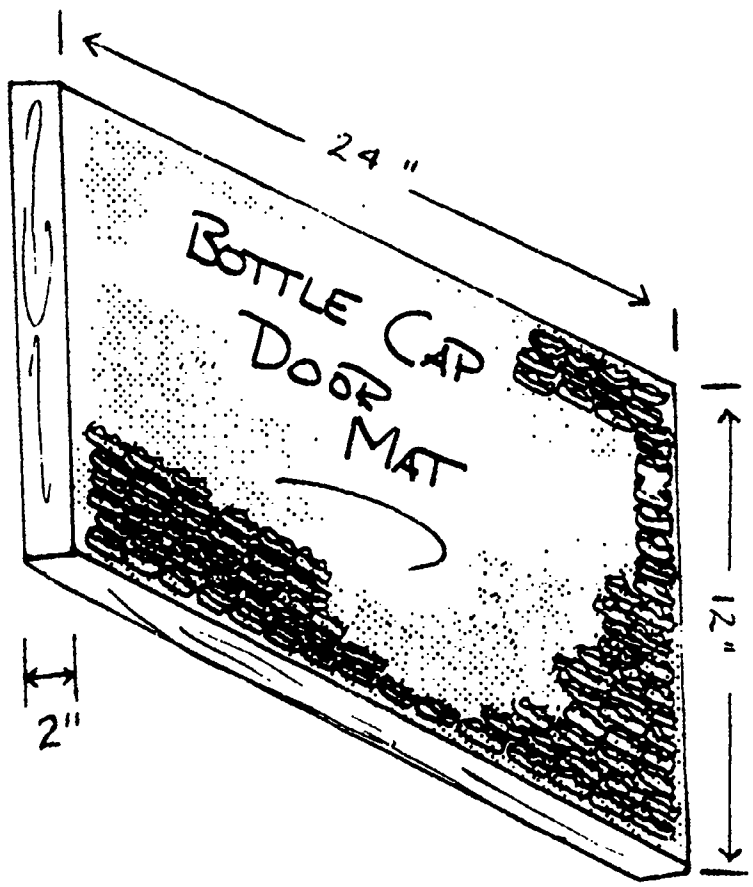
BOTTLE CAPS

PRE-ACTIVITY (5 minutes)

Discuss useful recycling ideas then present this activity as a class project for each student to create.

1. Gather bottle caps from soft drinks.

2. Bring materials from home (see p. 2)



Activity

ACTIVITY (50 minutes)

Make a Metal Doormat

Nail caps to wood flat side down, close together, side by side (one nail per cap).

This activity takes between 250-300 bottle caps per project.

POST-ACTIVITY (On going)

Use as a scraper in room to remove mud from boots following your field trips.

SUGGESTED ADDITIONAL ACTIVITIES

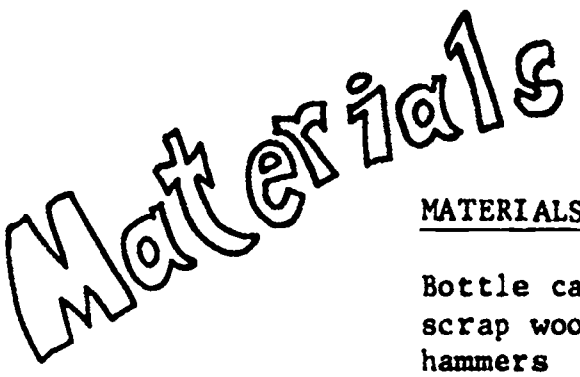
Dream up other ways to use waste products.

LEVEL V OBJECTIVE

Students will demonstrate constructive and cooperative action in the maintenance or improvement of the local environment.

LEVEL VI OBJECTIVE

The student will know that bottle caps can be recycled into a useable product.



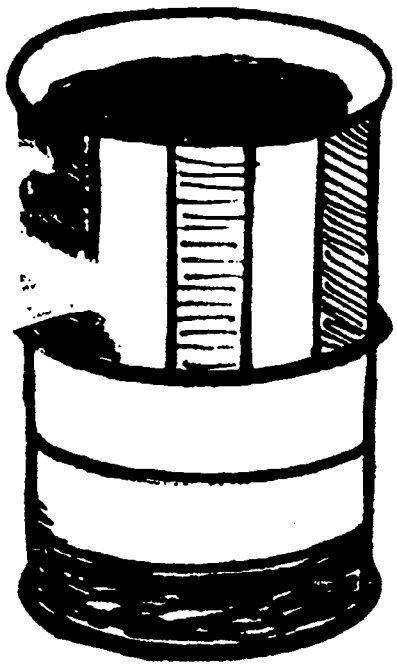
MATERIALS

Bottle caps; roofing nails; scrap wood (2 x 12's, 2 feet long); hammers

TEACHER BACKGROUND INFORMATION

This activity should not cost too much money if you can plan ahead to obtain scrap wood and old roofing nails. Have each student buy or bring his own. Hammers may be brought from home, too. This should be done outdoors on the blacktop or play area or at a time when the noise of hammering will not interfere with other classes. Don't forget to pick up all the leftover nails in the work area!

• CAN IT

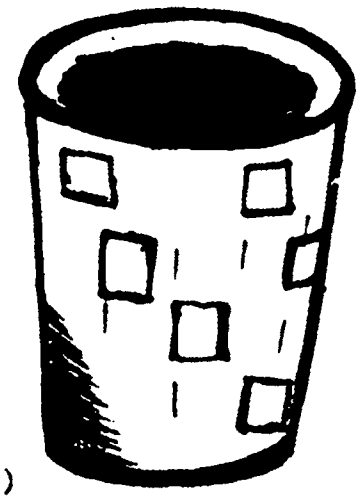


TOPIC: Litter
SUBJECTS: Art, Social Studies
EST. TIME: 70 minutes
GRADE: 3

PRE-ACTIVITY (15 minutes)

Discuss School Littering

1. What do you know about littering at school?
2. Do we have enough convenient places to put litter? In school? On the grounds?
3. Why do some places have more litter than others?
4. Collect data daily as to amount of litter in selected areas.
5. Why do some litter containers not get used enough?
6. How can we make the containers more attractive. Enticing to use?
7. What types can we suggest for use on the school grounds?
8. How should the cans be fastened down?
9. Who will empty them regularly?



POST-ACTIVITY (15 minutes)

Place cans around school in strategic locations.

Observe and record information to determine if littering has been significantly decreased at school, in the selected areas of #4 in the Pre-Activity.

Activity

ACTIVITY (40 minutes)

Design Effective Litter Containers

1. Design litter containers using available barrels or cans obtained through class decision, planning and effort.
2. Gather materials.
3. Paint and decorate with chosen creative, artistic designs or school mascots.

SUGGESTED ADDITONAL ACTIVITIES

Redesign containers as a project each year.

LEVEL V OBJECTIVE

1. Students shall recognize various pollution problems, their causes and effects.

2. The student will be able to identify environmental problems, especially in his own environment.

3. The students will know means of effecting change to environmental problems.

4. Students will demonstrate constructive and cooperative action in the maintenance or improvement of the local environment.

LEVEL VI OBJECTIVE

The student will understand that litter containers can be attractive.

MATERIALS

Wastebaskets; litter barrels; appropriate paints and brushes.

TEACHER BACKGROUND INFORMATION

Read the lesson first to find out what is needed and to plan for containers, other materials and an approach that is suitable to your needs.

TOPIC: Litter
SUBJECTS: Art,
Social Studies
EST. TIME: 45 minutes
GRADE: 3

PRE-ACTIVITY (5-8 minutes)

Discussion

Discuss the essentials for creating attractive poster (bright colors, big letters, spacing, etc.)

Select a snappy slogan for poster (Examples: "Make the Scene - Clean," Don't be a Grub, Pick it Up, Bub," "Stash that Trash")

BAN CRUD

ACTIVITY (30 minutes)

Painting Posters

After selecting a slogan, paint a "snappy" poster.

Activity

POST-ACTIVITY (10 minutes)

Clean Up and Put Up

After clean-up, analyze the posters. Select the most attractive ones to put in businesses. Put some up at school. Put all posters up.

SUGGESTED ADDITIONAL ACTIVITIES

Have a contest throughout the school, other schools in the district, or a statewide contest. Show film "We're On Our Way."

Write: Mrs. Diana MacArthur, Coordinator
National Youth Conference on
National Beauty and Conservation
830 Third Avenue
New York, N.Y. 10022

LEVEL V OBJECTIVE

Student shall recognize the need to remind people not to litter.

LEVEL VI OBJECTIVE

The student will know the essentials of attractive posters.

MATERIALS

Poster paper; paint;
brushes for each child
or every two children

TEACHER BACKGROUND INFORMATION

Make letter big - fill the whole paper.
(Bring an apron.)

RESOURCES AND CREDITS

Report to the Nation: National
Youth Conference on Natural Beauty
and Conservation.

Paint litter monster on box.

Color or paint lunch sack for cars.

TOPIC: Litter
SUBJECTS: Art, Social Studies
EST. TIME: 2 or 3, 45 minute periods
GRADE: 3

LITTER CONTAINERS

PRE-ACTIVITY (10 minutes)

Discuss Highway Litter

Ask Students:

1. Have you seen litter along the highway? Where?

2. What kind of things have you seen thrown away?

3. How much has been discarded from moving vehicles?

4. Do we have laws against littering? Do we have laws requiring litter bags in cars?

Activity

ACTIVITY (45 minutes)

Design and Make a Vehicle Litter Container

Design a container for a car or bicycle. Make the litter container. Take it home and use it. Bring it back to class when it is filled.

POST-ACTIVITY (10 minutes)

When filled containers are returned to the classroom, each student should:

1. Analyze the litter collected.

2. Determine the time it took to fill the container.

3. Discuss: What are the problems in collecting litter in moving vehicles?

SUGGESTED ADDITIONAL ACTIVITIES

Redesign a better container for litter disposal in a moving vehicle, like a bicycle or motor bike.

Have a contest - see which litter container is most unique.

LEVEL V OBJECTIVE

1. Student will discuss highway and street-side litter.
2. Student will make an auto and bicycle litter container.
3. Student will record the time it took to fill the bag.
4. Student will analyze efficiency of the container.

LEVEL VI OBJECTIVE

The student will know that litter bags in automobiles are required by law.

MATERIALS

Several examples of commercial litter containers; other materials depending on designs produced by children.

TEACHER BACKGROUND INFORMATION

Every state has litter laws. As of June 1973, Washington requires litter bags in all cars.

TOPIC: Litter
SUBJECTS: Music, Lang. Arts
EST. TIME: 25 minutes
GRADE: 3

LITTER LYRICS

PRE-ACTIVITY (10 minutes)

Singing

Introduce class to some songs about littering. (See p. 3)

Discuss elements of a song - rhythm, lyrics, melody.

ACTIVITY (15 minutes)

Composing a Song

Divide children into groups of 3 or 4.

Using a familiar melody, write a lyric to fit the tune.

OR

Selecting a poem about littering, create a melody. Or do both.

POST-ACTIVITY (Another Day)

Students will teach one of their original songs to other groups or classes. Sing these songs at a P.T.A. or school assembly.

SUGGESTED ADDITIONAL ACTIVITIES

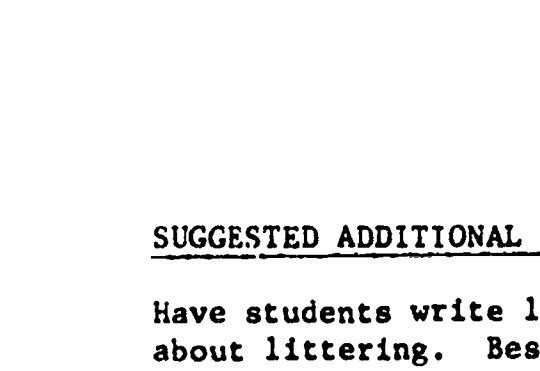
Have students write limericks about littering. Best "tune" goes on the radio or T.V.

LEVEL V OBJECTIVE

Student will take positive action to help change an environmental problem.

LEVEL VI OBJECTIVE

The student will know that a song or poem can communicate litter information.



MATERIALS

Song sheets, guitar, piano or autoharp.

RESOURCES AND CREDITS

OUTDOOR SCHOOL SONGBOOK - Edmonds School District #15

LITTERBUG RAG (B)

D E7
If you throw paper in the street,

A7 D
You're a Litterbug.

D E7
If you don't keep our beaches neat,

A7 D
You're a Litterbug.

G D
If you throw litter from your car,

E7 A7
A Litterbug is what you are ---

D E7
If you throw litter anywhere,

A7
Street, beach, or in the air,

D
You're a Litterbug.

TOPIC: Litter
SUBJECTS:
EST. TIME: 80-90 minutes
GRADE: 3

PRE-ACTIVITY (20-25 minutes)

Introduction to Issue or Problem

1. List at least 2 areas where improvement is needed to beautify school grounds. (See Task 1, p. 3; 5 minutes.)

2. What ideas do you have for making the improvement (list 2 or more). (See Task 2, p. 3; 5 minutes.)

3. Get into groups of 3, list common concerns and solutions. (See Task 3, p. 4.)

4. Each group share common concerns and solutions. Recorder writes all contributions on a chart.

5. Class chooses 1 most needed for improvement.

ACTIVITY (60 minutes)

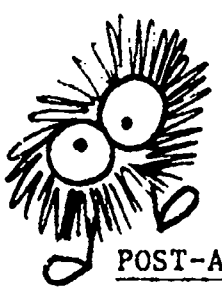
1. Class determines interested persons or groups who could give approval and help. (Task 4, p. 4)

2. Each small group develops an action plan. (Task 5, p. 5)

3. Class develops action plan from the group's recommendations.

4. List steps of the action on board and assign duties.

5. Each group "does its duty."



POST-ACTIVITY

Evaluation (Task 6, p. 6)

SUGGESTED ADDITIONAL ACTIVITIES

Tackle another problem - but have each group rather than a whole class work on it.

LEVEL V OBJECTIVE

The student will be able to identify and solve a local environmental problem.

LEVEL VI OBJECTIVE

The student will know that a playground area can be made more attractive through students' efforts.

TEACHER BACKGROUND INFORMATION

The processes and procedures included here for investigating an issue were developed because of the need to involve people more meaningfully in the study of current problems and issues relating to environmental use and management.

This series of involvement activities allows you to focus on a current environmental issue or situation.

The process and format used here is designed to be easily modified or adopted to fit the study of any environmental issue or concern.

For a complete explanation of the total process, see "A Process of Investigating an Environmental Issue," Investigating Your Environment Series, U.S. Forest Service, Portland, Oregon.

MATERIALS

Depends on project.

RESOURCES AND CREDITS

Ernie and Char McDonald

TASK 1 (5 minutes)

Write down two areas in and around our school that you feel should be beautified.

1.

2.

TASK 2 (5 minutes)

List the ideas you have for beautifying each area:

Area 1 (Ideas for beautifying)

A.

B.

C.

Area 2 (Ideas for beautifying)

A.

B.

C.

TASK 3 (10 minutes)

Get into groups of three and:

A. See if there are any common areas.

B. See if there are any common solutions.

Make a list of:

A. Common Areas	B. Common Ideas For Beautifying
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.

TASK 4

List people and groups you think might help you or be able to give needed permission:

A.

B.

C.

D.

E.

TASK 5

Write your solution under "Suggested Solution." Complete the rest of the chart.

Suggested Solution(s)	List Steps Necessary to Carry Out Your Idea: Steps	Target Date	Who Could Help You With Each Step	What Materials Will You Need?	How Will You Decide If Your Actions Are Successful?
	1.				
	2.				
	3.				

TASK 6

What did you think about your activities?

Respond to the following questions:

1. Group interaction and individual participation.

   A) How did you feel about your participation as an individual?

   B) What were some factors that helped people to work together as a group?

   C) What things were done to encourage participation by everyone?

   D) Did new leadership emerge during these activities? What factors enabled this to happen?

2. Content and procedures

   A) What techniques were used to convince, persuade, or sell an idea?

   B) What additional information would you like to have had in order to prepare a better presentation or to gain more understanding about the issue?

TEACHING CHILDREN OUTDOORS

Guidelines for Conducting a Field Trip

I. PRE-TRIP

A. LOGISTICS

PREPARING TO USE AN ENVIRONMENTAL STUDY AREA

Visit the site yourself first in order to have the best control of the situation and anticipate some of the difficulties or logistics questions that could arise. Examine the area carefully and know your trails. This one step can make the difference between a successful and a chactic trip.

Is there room for your thirty active children? Are there problems of access? Will the children be able to see? You should obtain permission in advance if you plan to bring your class into a private area.

Organization and planning is essential. How far is it? How long will it take? What is needed (water, lunch, other equipment)?

RULES AND RESPONSIBILITIES

Before the trip, have the children join you in deciding on a set of rules and conduct based on the suggestions listed under the Activity Section. Try to keep the rules "do" rather than "do not." They should include most of the following:

1. Always keep the teacher within sight and sound.
2. Stay behind the leader and at a sufficiently safe distance from one another and dangerous areas. (Proper distance can be measured safely and conveniently by the students in terms of "body length.")
3. Always watch and listen for the teacher's signal to pay attention and gather together.
4. Try to leave the place in as good, or better condition, than you found it. Replace everything you move. Avoid stepping on plants and animals whenever possible.

PREPARE FOR EMERGENCIES

1. What are the health and safety hazards? Include a First Aid Kit and water, if necessary.
2. Remind students to dress properly for the weather and type of activity planned (e.g. hats, raincoats, wading boots, etc.)
3. Children should be warned that they are to avoid picking up any plant or animal about which they are in doubt (see guidelines for collecting specimens). Students should not taste or eat anything without first checking with the leader.
4. If you teach in an area where there are poisonous plants, snakes or insects, be sure that you and the children recognize the poisonous

4. (continued)
species. Then they should also know poison ivy, poison oak and poison sumac and avoid them.

USE OF ASSISTANTS OR PARAPROFESSIONAL AIDES

1. High School Teachers' Aides: If you have a high school teacher aide, why not divide your class in half and plan together to let him/her help in certain phases of teaching outdoors (within sight and sound of your supervision).

   More information about the availability and assignment of high school student teachers' aides for classwork and or field trips may be obtained from the high school Counseling Office in each high school.

2. Intermediate and Junior High School Students: Depending on the time and difficulty of your particular outdoor activity, you can depend upon junior high and even intermediate students to conduct simple 10-15 minute exercises outdoors with small groups of younger students. It is mutually beneficial if properly planned and supervised. Contact the Counseling Office in each school for aides.

3. Parents: Find a parent who is willing to assume an active role in assisting you with learning activities outdoors.

   Also, why not organize parent work parties after school to improve outdoor laboratories for learning on or near elementary school sites?

4. Docent Aide Programs of Community Organizations: For further information, contact your school district's Coordinator of Community Volunteers.

B. LESSON PLANNING

AREAS AVAILABLE FOR USE

A. School Site: Your own school site is rich in opportunities for environmental observation, learning, beautification, and improvement.

When you have seen your own school site, why not schedule a field trip to another school site?

B. Neighborhood Parks: Check your city map and plan a hike to the nearest park or public natural area. What are its unique characteristics and experiences for learning?

C. Special Attractions: Included here are areas such as Marshall Outdoor Laboratory, Chase Lake Bog, State and National Parks and Forests and other public or private areas permitting your use for education.

PREPARE THE GROUP IN ADVANCE

Where to Go

The first prerequisite for a site is that it provide what you want the children to see or do. The closer it is and the easier it is to get to, the better.

First, the teacher must become acquainted with the descriptive features of the area and with its significance. But you should go beyond merely identifying the flora and fauna or the outstanding physical features of the facility. You should take a close, analytical look around the site and decide which of its characteristics are relevant to people and environmental education in terms of your subject or discipline.

When you find something interesting, tie a piece of yarn near to it to help you find it when you want to show it to the rest of the class.

A. Motivation: Discuss the purpose of the trip with the class beforehand. If the children don't know what to look for, they will become bored and restless quickly. If they are absorbed in a problem, they may maintain interest for a long time. You should know what you want the children to look for before you start out, even if it is stated in only the most general terms.

Be prepared to cover at least some of the field trip objectives given to you by your group during your planning sessions.

B. Materials: Take as little as possible with you; the less equipment, the better. What you decide to take depends on the purpose of the trip. You may want the children to have pencils and notepads. Pieces of yarn can serve as markers for interesting discoveries made by the children. Magnifiers, maps or compasses may be very useful, but you risk loss or damage.

If you want to have them along, take as few as you can and put each one in the specific care of a responsible child.

If you intend to collect specimens, you will need appropriate equipment such as plastic bags, etc. You may also want to carry a camera. Collecting on the site is done only with special permission and is generally discouraged; therefore, bottles, nets, traps,

or other cumbersome and often dangerous paraphernalia should be left at home. Students saddled with the responsibility of comprehensive notetaking or with long checklists of things to observe, are often so busy recording and searching for specifics that they rarely get the big environmental picture.

Reference materials to aid in identification are handy, but not so essential that the expedition be weighted down with them.

The on-site experience should be primarily observational. Work best accomplished in the classroom, such as research, calculations, and more academic studies, should not be attempted at the environmental study area, but rather left to the post-site lessons back in the classroom.

The best guides as to what to take along are the activities most suited to the site and the subjects to be studied there. 1) If the on-site experience is to include identification of objects, the pre-site studies should include enough information so that the students know what to look for. 2) If, on the other hand, the on-site experience is to allow the students the excitement of making discoveries, there should be enough guidance - in the form of pertinent questions - to direct their observations toward the given goal. 3) When the environment is to be used as a venicle for discussion, as in a social science field study, there should be a predetermined understanding of what environmental on-site observations will best motivate the students.

4) A research trip, though open-ended and allowing students a great deal of freedom, should have specific learning objectives.

II. ACTIVITY

A. LOGISTICS

1. Review your student-made rules and define your boundaries with easily recognized landmarks.

2. Explain that this is an outdoor classroom, and that the students should act like students.

3. Ask students to go to the restrooms and get a drink of water before the trip starts.

4. Explain that you will raise your hand to get the group's attention while on the trail. This should serve as an automatic signal for them to stop where they are and remain quiet.

5. When students see or hear the established signal, they should immediately gather around the teacher or in a semi-circle around a point of interest.

6. Whistles are disturbing to children, other groups, and wildlife and should not be used except in an emergency when everyone is called to assemble and return to the school at once. In such a case, the children should be taught to recognize one internationally accepted signal for distress, which is three short blasts on a whistle.

7. There are occasions, depending on the nature of the trip, when the "Buddy System" works just as well on field trips as at the waterfront.

8. Before leaving, have students count off. Before returning from the field, count off again.

9. The teacher or another adult who is familiar with the area should lead the group. Any other arrangement must remain in control (sight and sound) of the adult leader at all times.

10. It is most essential to have a responsible person at the rear at all times.

11. Have students play follow the leader, in single file, when you want to arrange them in a semi-circle around a particular point of interest.

12. Be quiet and move slowly so that you do not disturb the creatures that live there.

13. Watch the length of the line. Don't make the trip a marathon. Move out rapidly at first, and then proceed according to the group's ability. Pace is determined by the slowest walker. Don't make walking a chore. Change the speed of your pace occasionally. It helps to maintain interest.

14. Always remember to stay on the trail, watch your feet, display good outdoor manners and practice good conservation.

15. Keep stops short. When choosing resting places, try to find an interesting site to accommodate the group: A hilltop or hillside with a panoramic view; a stream or lake side; beside a gravel pit; at the dooryard of an abandoned farm;

15. (continued)
at the edge of a forest. Avoid poisonous plants. While resting, check on the condition of your students, as well as cameras, compasses, sketch pads, and exchange of information.

16. Try a different route if a return trip to the starting point is necessary. It helps to keep up interest.

17. Conclude the trip on an interesting note.

B. LESSON PLANNING

TEACHING TECHNIQUES

1. Involve the group actively during the trip as much as possible. Emphasis should be placed on doing. Look for things you have talked about. Emphasize self discovery. Allow time for free exploration. Encourage individual curiosity, investigation and sharing of discoveries with the rest of the group. Encourage use of all five senses whenever possible. Encourage the children to taste, smell, hear and see.

2. Avoid talking about something while on the trail until the entire group has caught up and you have their attention. If possible, try to get the group around you before you start talking.

3. Project your voice. Lift chin up and talk up and over those in front, when the group cannot gather around you but is strung out in a long line. Direct your voice to the last person in the line.

4. Watch your vocabulary, especially natural history and conservation jargon which may be new to the children.

5. Avoid identification for its own sake. Identification and uses of plants and materials helps, but it is not necessary to be a walking encyclopedia. Even Indians did not know all of the oaks, but they knew which acorns were good to eat.

6. Repeat out loud questions directed to you from the group so that everyone hears the question.

7. Talk conversationally. Lecture as little as possible. Ask leading questions to stimulate participation. Answer a child's question with a question which will guide him toward giving the correct answer himself. Don't, however, belabor this technique. Don't bluff. If you can't answer the question, say so, then suggest that the student investigate the resources for an answer.

8. Make it exciting. Be enthusiastic even over something you have noticed before. Remember, to the group it is new. Maintain a feeling of adventuring. Remember that there can be a significant difference between excitement and learning. Excitement should be delicately channeled toward interest. If you become the eyes and ears of your inexperienced charges, you will soon find that your sensitized students will serve as additional eyes and ears for you. They will call to your attention things that you would ordinarily overlook.

9. Prepare for surprises. Take advantage of teachable moments! If a child discovers something exciting, stop what you are doing, if possible, even if what the child wants to share with the group has little or nothing to do with whatever subject you are covering, and allow him to talk about his discovery. You can direct the group's attention back to your subject later. Use tact in keeping the students' facts straight to avoid discouraging self-expression. Avoid getting off on a tangent for very long, unless you all agree that a new study area is more important than the original purpose of the trip.

9. (continued)
So many things that can initiate learning out-of-doors are sometimes overlooked - buds on twigs, a bird with something in its beak, an ant dragging a caterpillar along the ground, the direction in which dandelion fluff is blowing, the position and phase of the daytime moon.

Any single observation can be the beginning of exciting exploration and lead to the joy of further discovery.

Every observation leads to a question: What is inside buds? Why doesn't the bird swallow the worm in its beak? Where is the ant going with the caterpillar? What happens to the dandelion seeds after they blow away?

The most interesting questions are questions that do not have neat, precise answers, but this should not prevent your investigating them anyway. The out-of-doors is so full of interacting things, that answers are always new and interesting and different.

10. Collecting Specimens: The field trip may lay the groundwork for activities you will want to do in the classroom. Collect only those things as are absolutely necessary for such follow-up, because it is important that the children learn good conservation habits.

The basic rule is to leave a natural habitat undisturbed. Replace anything you move. Avoid stepping on plants or animals whenever possible. If an animal is caught and observed, it should be put back where it was found - allowed to "go home."

The field trip should be distinguished from a collecting expedition, which would be better carried out by you alone or with a few selected students.

Make all collections in accordance with the law or other prescribed regulations, and try to leave the place in as good, or better, condition than you found it.

III. POST-ACTIVITY

AFTER THE TRIP - LET THE MEMORY LINGER ON

Some leaders like to have group evaluations before a trip is concluded, or at a later time. In some instances, an evaluation is not necessary.

CREDITS

LEADING CHILDREN IN THE FIELD, U.S. Forest Service, R-6, Portland, Oregon. PUTTING CONSERVATION TO WORK, Teaching Aid #4, August 1965.

LIVING THINGS IN FIELD AND CLASSROOM, "Planning Any Type of Trip," pps. 97-99, Minnesota Math and Science Teaching Project, University of Minnesota, copyright 1969.

MAN AND HIS ENVIRONMENT "Preparing to Use the Environmental Study Area," pps. 16-20, National Education Association, 1970.

SUGGESTIONS FOR OUTDOOR FIELD TRIPS Ernest V. Blohm, Executive Secretary, Michigan Interagency Council for Recreation, Lansing Michigan, April 19, 1966.

TIPS FOR TRAIL LEADERS
Charles Holtzer, Consultant,
Conservation and Outdoor Education,
Colorado Dept. of Education,
September 1968.

RESOURCES, BACKGROUND INFORMATION,

AND SPEAKERS

DEPARTMENT OF ENVIRONMENTAL HEALTH
University of Washington (543-3620)
Tours of facilities for all grade levels.

U.S FOREST SERVICE
Pacific N.W. Region (R-6)
Motion picture films available in Region 6 library, available on loan for educational purposes to schools, civic groups, churches.
Write to: WASHINGTON STATE FILM LIBRARY
Olympia, Wash. 98504 (206-753-3390)

DEPARTMENT OF CIVIL ENGINEERING: Air and Waste Quality Control
University of Washington
Tours and information.

EDMONDS RECREATION AND PARKS
Subject: Park Acquisition and/or Development
Rod Garretson, Dept. Director
Subject: Park Management
Rod Garretson or Don Burton, Park Superintendent
Subject: Recreation Program - Correct Park Usage, etc.
Doug Schafer, Recreation Supervisor

SNOHOMISH COUNTY PUD
Subject: Energy
Dick Downie, Environmental Coordinator
Don Rider, Public Relations

SNOHOMISH COUNTY HEALTH DEPARTMENT
Subject: Nursing
Ann Wilson, Kathy Carrol (259-9386)
Subject: Environmental Health
Sewage - Charles Mangum (259-9473)
Food Programs - includes restaurants, bakeries, itinerant food (circuses, carnivals, etc.), meat markets.
School, Solid Waste, Camping Areas, Mobile Home Courts, Chemical and Physical Health Hazards Unit, Rodent Control - Byron Robertson (259-9499)
Water and Noise - Gary Fraser (259-9499)
Epidemiology Unit - Dr. Luke (259-9473)
V.D. Section

THE INSTRUCTOR PUBLICATIONS, INC.
Subject: Ecology Posters #750
Dansville, NY 14437

WASHINGTON LUNG ASSOCIATION
216 Broadway East
Seattle, WA 98102
Contact: Mr. David L. Chivers, Regional Program Director
For: "Our Polluted Air" Mobile Workshop (one month in advance), various air pollution pamphlets and health information, films also available on request.

EDUCATIONAL SERVICES CENTER
Bill Hamilton (778-8965) or John McAdam (778-8658)
Information and resources

SEATTLE AUDUBON SOCIETY
712 Joshua Green Bldg.
Seattle, WA 98101 (622-6695)

FILMS

Numbers in parentheses immediately following titles indicate lengths of film in minutes. C for color; BW for black and white.

Conservation

A MATTER OF TIME	Conservation Foundation 30 East 40th Street New York, N.Y.
PARADISE POLLUTED	Roy Wilcox Productions 301 Allen Hill Meriden, Conn.
THE PERSISTENT SEED	National Film Board of Canada Canadian Embassy 1746 Mass. Ave. NW Washington, D.C. 20036
WITH EACH BREATH	New York State Air Pollution Control Board 84 Holland Avenue Albany, N.Y.

CONSERVATION AND BALANCE IN NATURE	International Film Bureau 332 South Michigan Avenue Chicago, Ill. 60604
OUR CHANGING ENVIRONMENT	Encyclopedia Britannica Films, Inc. 1150 Wilmett Avenue Wilmett, Ill.
SO LITTLE TIME	USDI Sport Fisheries and Wildlife 710 N.E. Holladay Portland, Oregon
TOWARDS TOMORROW	BBC through British Embassy Washington, D.C.
3 YOUNG AMERICANS IN SEARCH OF SURVIVAL	3M Company Television Production
WILD RIVERS (28)	Modern Talking Picture Service 1212 Avenue of the Americas New York, N.Y. 10036
CLEAN WATERS (20) Free	U.S. Public Health Service Audiovisual Facility Chamblee, Georgia 30005
NATURE'S PLAN (14) $6.00	Encyclopedia Britannica Films 202 East 44th Street New York, N.Y. 10017
IT'S YOUR DECISION - CLEAN WATER (14 1/2)	Association Films 600 Grand Avenue Ridgfield, N.J. 07657
THE RIVER MUST LIVE (21) Free	Shell Oil Company, Film Library 450 North Meridan Indianapolis, Ind. 46204
TROUBLED WATERS (28) Free	U.S. Senate Public Works Committee Room 4204, New Senate Office Bldg. Washington, D.C. 20510
GREAT LAKES INVADER, THE SEA LAMPREY (13 1/2) Free	Bureau of Sport Fisheries and Wildlife 1002 N.E. Holladay Street Portland, Oregon
THE WHOOPING CRANE (14) Free	Bureau of Sport Fisheries and Wildlife

NATIONAL PARKS, OUR AMERICAN HERITAGE (17-c)	Seattle Public Library 4th and Madison Seattle, Wash. 98104
RETURN OF THE BUFFALO (10-BW)	Seattle Public Library
WOODLAND MANNERS (19-C)	Seattle Public Library
LIFE ON THE WESTERN MARSHES (15-C)	Seattle Public Library
LET'S KEEP AMERICA BEAUTIFUL (18-C) $1.50	Richfield Oil Company P.O. Box 75007 Sanford Station, Los Angeles, Calif.
WINGS OVER BLITZEN (39-C)	Bureau of Sport Fisheries and Wildlife 730 N.E. Pacific Street Portland, Oregon 97208

Most of the following films on conservation are available to teachers through their school district, or to anyone through Rarig's Inc., Audio-Visual Sales and Service, 2100 North 45th, Seattle, Wash.

CONSERVATION (10-BW)
TOPSOIL (10-C)
CASCADE MOUNTAINS (20-C)
WATER-FOUNTAIN OF LIFE (30-C)
WATER CONSERVATION (11-BW)
WHAT MAKES RAIN? (10-BW)
CONSERVING OUR NATURAL RESOURCES (18-C)
UNTOUCHED LAND (30-C)
LITTERBUG (8)
CITIES AND SUBURBS: METROPOLITAN (9-C)

Ecology and Enjoyment of Nature

The following films are free of charge. Write Conservation Film Center, P.O. Box 9163, Seattle, Wash. 98119

LIVING RIVER - GRAND CANYON (29-C)
WILDERNESS ALPS OF STEHEKIN (30-C)
GLACIER PEAK HOLIDAY (30-C)
BULLDOZED AMERICA (27-BW)
NORTH CASCADES (35 mm slide show with script)
THE REDWOODS (20-C)
THE MYTHS AND THE PARALLELS (27-BW)
BEACH HIKE (17-C)
TWO YOSEMITES (10-C)
GLEN CANYON (28-C)
WASTED WOODS (15-C)
HELLS CANYON (33 mm slide show with script)

Most of the following films on ecology and enjoyment of nature are available to teachers through their school district or to anyone through Rarig's Inc., Audio-Visual Sales and Service, 2100 North 45th, Seattle,Wash.

THE SEA (26-C)
WORLDS OF DR. VISHNIAC (C)
COLUMBIA FRONTIER (27-C)
WORLD OF LITTLE THINGS (C)
BALANCE OF NATURE (17-C)
WHAT PLANTS NEED FOR GROWTH (10-C)
ECOLOGY (24-C)
LIFE STORY OF THE OYSTER (11-C)
DISTRIBUTION OF PLANTS AND ANIMALS (16-C)
PLANKTON, PASTURES OF THE OCEAN (10-C)
ANIMAL WAR-ANIMAL PEACE (27-C)
OUR MISTER SUN (60-C)
FATHER OCEAN (10-C)
WHY PLANTS GROW WHERE THEY DO (11-C)
CANOEING THE BIG COUNTRY (14-C)
DESERT COMMUNITY (12-C)

YELLOWSTONE: OUR FIRST NATIONAL PARK (15-C)
GRASS BLADE JUNGLE (11-C)
HERITAGE OF SPLENDOR (16-C)
AROUND THE BIG LAKE (17-C)
TRAIL RIDE (20-C)
LIFE IN THE OCEAN (11-C)
SPRING (9-C)
LIFE ON A DEAD TREE (11-C)
CONSERVATION: JOBS FOR YOUNG AMERICA (19-C)
LIFE IN THE OCEAN (11-C)
ANIMALS THAT LIVE IN THE SURF (11-C)
MARSH COMMUNITY (11-C)
THE DESERT (10-C)
ANIMAL LIFE AT LOW TIDE (11-C)
SPRING COMES TO A POND (13-C)
CAVE COMMUNITY (13-C)

WAY OF LIFE (Illustrates predatory tendencies of nearly all animals)	Wash. State Game Dept. 600 N. Capital Way Olympia, Wash. 98501
WILDERNESS TRAIL (14-C)	U.S. Forest Service Regional Office P.O. Box 4137 Portland, Oregon
WILDERNESS ENCAMPMENT (27-C)	U.S. Forest Service Regional Office
NATURE NEXT DOOR (28-C)	Sierra Club 1050 Mills Tower San Francisco, Calif.
AN ISLAND IN TIME (28-C)	Sierra Club
THE GREAT SWAMP (30-C) (Documentary of a national wildlife refuge)	Bureau of Sport Fisheries and Wildlife Office of Regional Director 730 N.E. Pacific Street, P.O. Box 3737 Portland, Oregon
PATTERNS OF THE WILD (27 1/2-C) (Shows that the wildlife of a forest does not merely live in a forest, but as a part of it.)	Bureau of Sports Fisheries and Wildlife
BIRDS AND THEIR MIGRATION (18-C)	Bureau of Sports Fisheries and Wildlife

FOR THE PEOPLE - WILDLIFE REFUGE (22 1/2-C)	Bureau of Sport Fisheries and Wildlife
GREAT BLUE HERON AND THE SNOWY WHITE EGRET (15-C)	Bureau of Sport Fisheries and Wildlife
KNOW THE HAWKS (10 1/4-C)	Bureau of Sport Fisheries and Wildlife
OUR MAGIC LAND (12 1/2-C) (For primary)	Bureau of Sport Fisheries and Wildlife
WATER BIRDS (22 1/2-C) Walt Disney	Bureau of Sport Fisheries and Wildlife

The following films can be rented from National Audubon Society, 1130 Fifth Avenue, New York, N.Y. 10028. Prices range from $5.00 to $11.00. All are 16 mm sound films.

THE BALD EAGLE, OUR NATIONAL BIRD (35-C)
BEAVER VALLEY (32-C)
BIRDS OF THE COUNTRYSIDE (11-C)
BIRDS OF THE DOORYARD (11-C)
THE GOONEY BIRD (20-C)
ISLAND IN DANGER (25-C)
ISLANDS OF GREEN (24-C)
KENTUCKY'S FEATHERED RAINBOW (28-C)
LOOK DOWN (55-C)
A James W. Wilkie Film
THE LOON'S NECKLACE (11-C)
NATURE'S HALF ACRE (33-C)
POISONS, PESTS AND PEOPLE (55-BW)
THE TOUCH OF NATURE (54-C)
THE WINDOW (17-C)
THE WOOD DUCKS WORLD (30-C)
YOUR LIVING HERITAGE (12-C)
VILLAGE BENEATH THE SEA (90-C) ($50.00)

The following 16 mm films must be used in a sound projector. Massachusetts Audubon Society, South Great Road, Lincoln, Mass. 01773.

BEARGRASS GREEK (20-C)
BEAVER DAM (16-C)
GREEN CITY (30-C)
LAND OF THE PRAIRIE DUCK(25-C)
LIFE IN A TROUT STREAM (10-C)
LIFE IN THE WOODLOT (17-C)
MARSHLAND IS NOT WASTELAND (14-C)
OUR WILDLIFE HERITAGE (30-C)
POPULATION ECOLOGY (19-C)
SILENT SPRING OF RACHEL CARSON (57-BW)
THEIR HERITAGE (20-C)
Free
WORLD IN A MARSH (23-C)
YOURS FOR A SONG (14-C)

The following films are available from the Seattle Public Library, Main Branch; free upon request.

AMERICA'S LAST FRONTIER (13-C)
LAND OF THE RED GOAT
OLYMPIC RAIN FOREST (10-C)
BETWEEN THE TIDES (20-C)
ALPINE WILDFLOWERS (11-C)
EDIBLE PLANTS OF FIELD AND FOREST (24-C)
FAMILY AFOOT IN THE YUKON (22-C)
MT. RAINER NATIONAL PARK (20-C)
ANIMALS OF ALASKA (11-C)
MARINE ANIMALS OF THE OPEN COAST (22-C)
CONIFER TREES OF THE PACIFIC N.W. (16-C)

FREE AND INEXPENSIVE MATERIALS

The following are good sources for free or low cost informational materials on Population, Conservation and Ecology. Write for information about available materials.

AMERICAN ASSOCIATION OF UNIVERSITY WOMEN
2401 Virginia Avenue, N.W.
Washington D.C. 20037
Resource directory on pollution control - 75¢.
Anti-pollution pamphlets and study guide - 75¢.

AMERICAN FORESTRY ASSOCIATION
919 17th Street N.W.
Washington, D.C. 20006
Pamphlets and bulletins. "You Can Be a Conservationist" by O.E. Randall.

CLEAN WATER
Washington, D.C. 20242
Suggestions about what communities can do to combat water pollution. Free.

CONSERVATION FOUNDATION
1250 Connecticut Avenue N.W.
Washington, D.C. 20036
Variety of pamphlets and articles dealing with the many aspects of ecology.

ENVIRONMENT MAGAZINE
438 North Skinker
St. Louis, Missouri 63130
Monthly publication dealing with effects of technology on the environment, published by Committee for Environmental Information. Student subscription - $5.00 per year.

INTERSTATE PRINTERS AND PUBLISHERS
Danville, Illinois 61832
Bibliography of books and other teaching materials in conservation field.

ISAAC WALTON LEAGUE OF AMERICA
1326 Waukegan Road
Glenview, Illinois 60025
"Clean Water -- It's Up to You," excellent pamphlet on what local citizens can do about water pollution. Free. Monthly conservation newsletter.

LOCAL TUBERCULOSIS AND RESPIRATORY DISEASE ASSOCIATIONS
"Air Pollution Primer"

NATIONAL PARKS ASSOCIATION
1701 18th Street N.W.
Washington, D.C. 20036
Free or low-cost pamphlets and articles on thermal pollution, noise pollution, pesticides, and basic ecology. Excellent.

NATIONAL WILDLIFE FEDERATION
1412 16th Street N.W.
Washington, D.C. 20036
Conservation Directory - a guide to all state and national sources of conservation and environment information. $1.50. Informational packets on ecology and pollution - special packets from elementary to adult level. Excellent. Monthly newsletter.

PLANNED PARENTHOOD, WORLD POPULATION
515 Madison Avenue
New York, N.Y. 10022
Bibliography, film guide and following reprints: "Eco-Catastrophe," by P. Ehrlich; "300 Million Americans Would be Wrong," by D. Lilienthal; "The Human Race Has Maybe 35 Years Left,: by D. Lyle.

POPULATION REFERENCE BUREAU
1955 Massachusetts Avenue N.W.
Washington, D.C. 20036
Good bibliography, source list, and film guide on population. Minimal cost.

PORTLAND CENTER FOR CONTINUING EDUCATION
P.O. Box 1491
Portland, Oregon 97207
Attn: Mr. Lawless
"Observing our Environment, " - $3.00, relating elementary students to our environment.

PROJECT MAN'S ENVIRONMENT
National Education Association
1201 16th Street N.W.
Washington, D.C. 20036
Information on curriculum (K thru 12) environmental study areas.

PUBLIC AFFAIRS INFORMATION SERVICE
U.S. Government Printing Office
Washington, D.C. 20401

PUBLIC AFFAIRS PAMPHLETS
381 Park Avenue South
New York, N.Y. 10016
Pamphlet #421 - "An Environment Fit for People" - 25¢
#403 - "The Battle for Clean Air" - 25¢

SIERRA CLUB
Mills Tower
San Francisco, Calif. 94104
List of publications, pollution, population information, protection of scenic areas.

SUPERINTENDENT OF DOCUMENTS
Government Printing Office
Washington, D.C. 20402
"No Laughing Matter" - book of syndicated cartoons on air and water pollution (70¢). "Primer on Waste Water Treatment" - current and possible future methods of treating sewage and industrial waste (55¢). "Showdown" - picture pamphlet discussing "showdown" for water quality (65¢). "From Sea to Shining Sea" - presentation of environmental situation of U.S. with good bibliography, film list, and resource guide ($2.50).

U.S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
Public Health Service
Bureau of Disease Prevention and Environmental Control
Washington, D.C. 20201

U.S. GOVERNMENT PRINTING OFFICE
Washington, D.C. 20401
Bureau of Census; Bureau of Indian Affairs; Bureau of Land Management; Bureau of Reclamation; Department of Agriculture; Department of Health, Education and Welfare; Department of the Interior; Forest Service; National Park Service; Office of Education; Soil Conservation Service.

WILDERNESS SOCIETY
729 15th Street N.W.
Washington, D.C. 20005
Reports, pamphlets, reprints on preservation and use of our natural heritage.

ZERO POPULATION GROWTH
367 State Street N.W.
Los Altos, Calif. 94022
Newsletters, brochures, ecology leaflets, reprints.

You may also write to your local:
- Chamber of Commerce
- Historical Societies
- Preservation Societies
- State Offices
- State Office of Public Instruction
- State Offices:
  - Agencies of Pollution, Bureau of Fisheries, Fish and Wildlife Service, Wildlife Commission.

PAMPHLETS AND OTHER PUBLICATIONS

A CONSERVATION HANDBOOK - 50¢ Ordway, Samuel H., Jr.	The Conservation Foundation, 1949 New York
OBJECTIVES AND CONTENT OF CONSERVATION EDUCATION FOR AMERICAN YOUTH - 50¢	U. Press, Ohio State University, 1950, Columbus Ohio
MATERIALS FOR TEACHING CONSERVATION AND RESOURCE USE - 35¢	National Assoc. Biology Teachers, Interstate Printers and Pub., Danville Illinois.
RESOURCES FOR A GROWING POPULTION, Seaton, Fred - 25¢	Supt. of Documents, U.S. Govt. Printing Office, Washington, D.C.
THE GLORY TRAIL - One copy free Swift, Ernest	The National Wildlife Federation 1412 16th St. N.W. Washington, D.C. 20036
THE PACIFIC NORTHWEST - $1 Zim, Herbert S.	Golden Press, New York
THE CONSERVATION OF OUR NATURAL RESOURCES, Seaton, Fred - 20¢	Conservation Bulletin 3-9, Supt. of Documents, above
CAREERS FOR WOMEN IN CONSERVATION - Free	U.S. Dept. of Labor, Leaflet 50, Women's Bureau, Washington, D.C.
WATER AND OUR FORESTS AIB-71 - 10¢	U.S. Dept. of Agriculture Forest Service, Washington, D.C.
FORESTS AND THE NATURAL WATER CYCLE K-1 - Free	U.S. Dept. of Agriculture
FOREST AND WATER 0-28 - Free	U.S. Dept. of Agriculture
HOW A TREE GROWS (16 x 12 poster) - 10¢	U.S. Dept. of Agriculture

FOREST REGIONS OF THE U.S.	U.S. Dept. of Agriculture
BIRDS, CN-1 - Free (There is a series of conservation notes number CN-1 through CN-21 available for education.)	Bureau of Sport Fisheries and Wildlife Dept. of Interior Washington, D.C. 20240
ENDANGERED WILDLIFE SERIES - Free (Numbered EWS-1 through EWS-5)	Bureau of Sport Fisheries and Wildlife
SOMETHING ABOUT HAWKS, SA-2 - Free	Bureau of Sport Fisheries and Wildlife
TREES OF WASHINGTON - Free (Extension Bulletin #440)	Cooperative Extension Service College of Agriculture Washington State University Pullman, Wash.
OFF ON THE RIGHT FOOT (A guide to proper wilderness use)	The Wilderness Society 729 15th Street N.W. Washington, D.C. 20005
ACTION FOR CLEAN WATER	The Wilderness Society
THE NEW CONSERVATION	The Wilderness Society
NEW CHALLENGES FOR WILDERNESS CONSERVATIONISTS	The Wilderness Society
A NEW LOOK AT OUR CROWDED WORLD Stewart, Maxwell, #393 - 30¢	Public Affairs Supt. of Documents U.S. Government Printing Office Washington, D.C.
PROGRESS IN THE PREVENTION AND CONTROL OF AIR POLLUTION - 30¢	Public Affairs
VEGETATION OF OREGON AND WASHINGTON (PNW Circular #80) - Free	Pacific N.W. Forest and Range Experimental Station P.O. Box 3141 Portland, Oregon 97208

LOCAL CONTACTS

Local decision-makers responsible for environmental quality:

CITY COUNCILMEN
Cities of Lynnwood, Edmonds and Mountlake Terrace

CITY PLANNING COMMISSIONS

SOUTH SNOHOMISH CHAMBER OF COMMERCE

How do present and future business needs affect planning for a quality environment? Will there have to be changes in business activity in order to solve environmental problems?

SNOHOMISH COUNTY PLANNING DEPARTMENT

What are comprehensive land use plans? How closely are these followed? Who is responsible to see that land use plans are complied with?

SNOHOMISH COUNTY PLANNING COMMISSION

How are Planning Commission members selected? What is their responsibility? How does their work relate to that of the Snohomish County Planning Department? Why is there a Planning Commission and not just a Planning Department? Why are there rezones and other exceptions to land use plans? How are these exceptions obtained?

SNOHOMISH COUNTY HEALTH DEPARTMENT

Environmental Health Division

What does the department have to do with problems of sewage disposal, water supplies (Spada Lake), food establishments, schools, tourist facilities, rodent and insect control, swimming pool and bathing beaches, refuse disposal?

SNOHOMISH COUNTY ENGINEER

What is the role of the County Engineer in making decisions on roads, transportation and other capital improvements in Snohomish County?

CITY DEPARTMENTS OF CITIES OF LYNNWOOD, EDMONDS AND MOUNTLAKE TERRACE

Building Department - What is the purpose of building codes? How are codes enforced? Are there exceptions? Why? How are decisions on exceptions made? What about conflicts between creating and enforcing of codes on the one hand, and protecting property rights on the other? Are there basic principles for resolving such conflicts?

Planning Department - What is the current city comprehensive plan? Where should businesses go? Apartments? Other multiple residences? What about lot sizes, etc.? What power does the Planning Department have? How are exceptions to the comprehensive plan decided? How does a city comprehensive plan relate to the county comprehensive plan? Is there some relating of local to regional planning?

Recreation and Parks Department

SNOHOMISH COUNTY ECONOMIC DEVELOPMENT COUNCIL
This organization is comprised of business and other organizations representatives to study and suggest to local land use decision-makers how area-wide comprehensive planning could take place for economic development of areas like Snohomish Valley.

Contact: Mr. Lloyd Repman, Chairman (Al 2-6236)
Monte Cristo Hotel
Everett, Washington

CITY OF EDMONDS
250 5th West
Edmonds, Wash. 98020
City Engineer, Planning Department, Recreation and Parks, Police Department, Water Department (200 Dayton, Edmonds, Wash. 98020)

ALDERWOOD WATER DISTRICT
City Center
Alderwood Manor, Washington 98036

CITY OF BRIER
City Hall
23303 Brier Rd.
Brier, Washington 98036

CITY OF LYNNWOOD
19100 44th Ave. West
Lynnwood, Washington 98036

CITY OF MOUNTLAKE TERRACE
Mountlake Terrace, Washington 98043

TOWN OF WOODWAY
11422 238th S.W.
Edmonds, Washington 98020

LYNNDALE GARDEN CLUB

LOUISE MARSHALL
16812 36th Ave. West
Lynnwood, Washington 98036
Author and editor of environmental and recreational materials.

SOUTH SNOHOMISH COUNTY COUNCIL ON HUMAN RELATIONS

PORT OF EDMONDS
456 Admiral Way
Edmonds, Washington 98020

SOUTH COUNTY SENIOR CITIZENS CENTER, INC.
220 Railroad Avenue
Edmonds, Washington 98020

MARIAN KOHN
1023 241st Place S.W.
Edmonds, Washington 98020
Parent and Research Associate, Zoology Department, University of Washington.

SNOHOMISH COUNTY HEALTH DEPARTMENT
South County Office
19701 Scriber Lake Road
Lynnwood, Washington 98036

SNOHOMISH COUNTY PARKS DEPARTMENT
Everett Courthouse (259-9317)
Everett, Washington

SNOHOMISH COUNTY PLANNING DEPARTMENT
Everett Courthouse (259-9311)
Everett, Washington

SUPERINTENDENT OF SCHOOLS
ISD 109
Everett Courthouse (259-0621)
Everett, Washington

SNOHOMISH COUNTY P.U.D. #1
21018 Highway 99
Lynnwood, Washington 98036

BOY SCOUTS OF AMERICA
Evergreen Council, Inc.
1615 1/2 Hewitt Avenue
Everett, Washington

SNOHOMISH COUNTY ENVIRONMENTAL COUNCIL

ADDRESSES FOR AGENCIES LISTED IN THE FILM LISTS

Aetna

Aetna Life & Casuality
Audio Visual Services
151 Farmington Ave.
Hartford, Conn. 06115

A -S

Association-Sterling Films
866 3rd Ave.
New York, N.Y. 10022

Common

Commonwealth Film Distributors
1440 S. State College Blvd.
Bldg 6-K
Anaheim, Calif. 92806

EBEC

Encyclopedia Brittanica Educational Corp.
425 N. Michigan Ave.
Chicago, Ill. 60611

Ethyl

Ethyl Corp.
Corporate Public Relations Dept.
330 S. 4th St.
Richmond, Va. 23219

FAA

Federal Aviation Administration
Film Library AC-44.5
P.O. Box 25082
Oklahaoma City, Oklahoma 73125

GASP

Group Against Smog And Pollution
P.O. Box 2850
Pittsburg, Pa. 15230

JF

Journal Films, Inc.
909 W. Diversey Pkwy
Chicago, Ill. 60614

Motor

Motor Vehicle Mfg Assn, Inc.
320 New Center Bldg
Detroit, Mich. 48202

MTPS

Modern Talking Picture Service
2323 New Hyde Park Rd.
New Hyde Park, N.Y. 11040

MUE

Media For Urban Environment
75 Frost St.
Brooklyn, N.Y.

NAC

General Services Admin.
National Archives And Records Service
National Audiovisual Center
Washington, D.C. 20409

NBC

NBC Educational Enterprises
30 Rockefeller Center
New York, N.Y. 10020

NFBC

National Film Board of Canada
680 5th Avenue
New York, N.Y. 10019

Shell

Shell Film Library
450 N. Meridian St.
Indianapolis, Ind. 46204

LESSON OUTLINE

TOPIC: _____
LEVEL: _____
EST.TIME: _____
SUBJECTS: _____

I. LEVEL V OBJECTIVE

II. LEVEL VI OBJECTIVE

III. TEACHER BACKGROUND INFORMATION

IV. MATERIALS NEEDED

V. ACTIVITY

A. PRE-ACTIVITY _____ Time: _____

B. ACTIVITY _____ Time: _____

C. POST-ACTIVITY _____ Time: _____

VI. RESOURCES

VII. SUGGESTED ADDITIONAL ACTIVITIES